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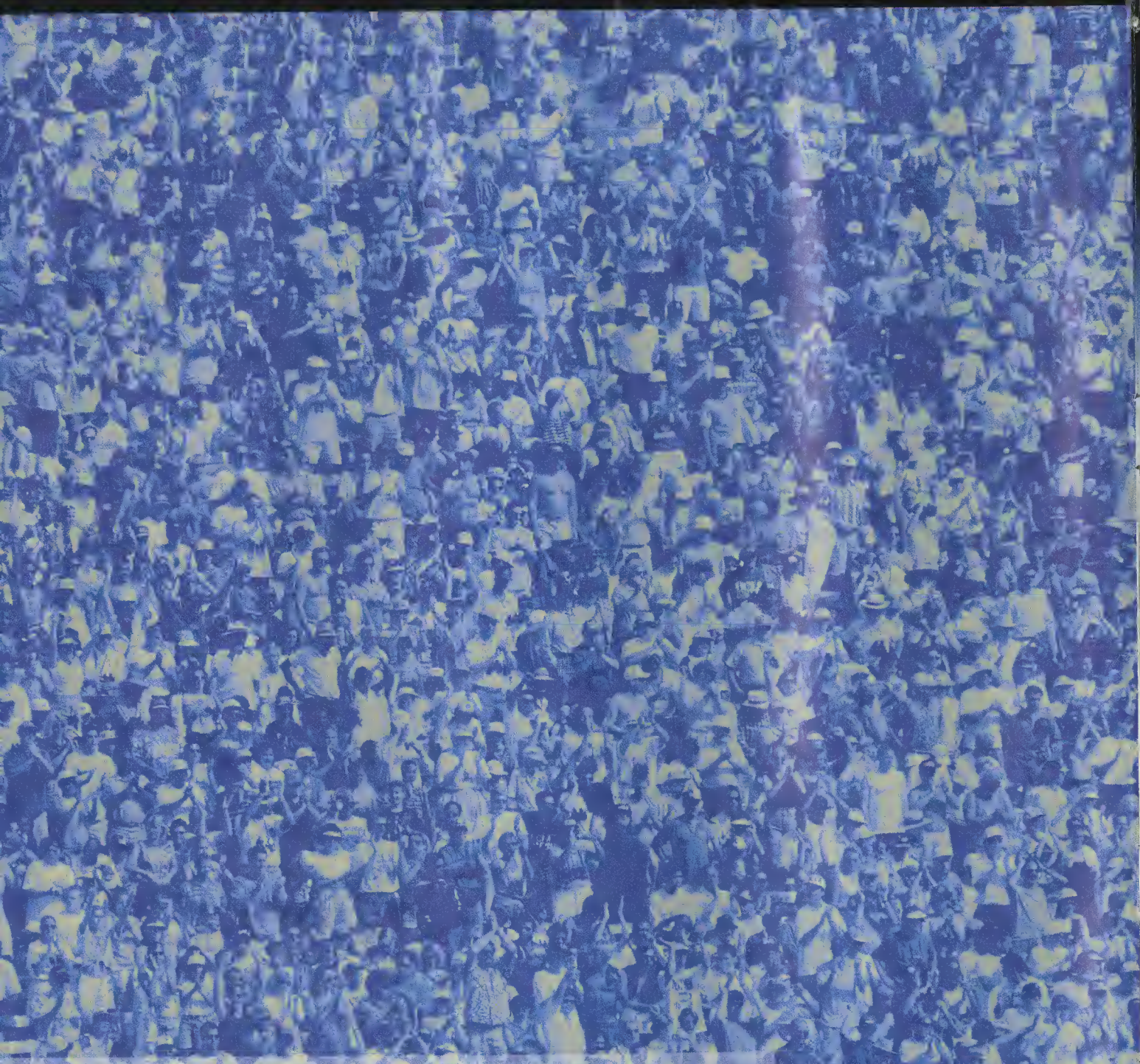
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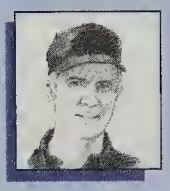
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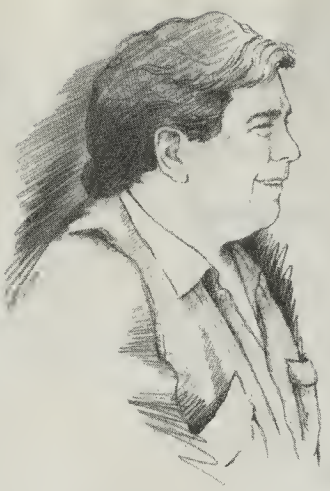
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EDITOR'S NOTES

by Jack Rickard

CULTURAL LEGACY OF COMMUNICATIONS MONOPOLIES

Communication monopolies are good business — for those who have the monopoly. In spite of all the grousing you've heard from telcos the past few years, AT&T had well over a hundred years of continuous uninterrupted dividends and remains even today the most widely held stock in America.

The Internet began life as a build, around bypassing telephone companies. They did, of course, provide the leased-line infrastructure, at their published prices for same. But take care following the currently revised history of the Internet. They didn't think it should be done. They didn't think anyone else should do it. And they repeatedly announced in braying terms that there was no real market for it then or in the future. I personally delivered at least eight presentations to telcos about providing relatively modest data service offerings and was assured by very knowledgeable telco execs that there would never be a market for it. Whenever you hear now that they really invented it, take it with a grain of salt.

The concept of an Internet monopoly was originally an oxymoron. There were a large number of networks, most notably universities and DOD contractors. If you interconnected them in cooperative fashion for the exchange of data, you had an internet. And if it somehow connected to the NSFNet backbone after about 1986, it was on the capital "I" Internet.

Since the commercialization and privatization of the Internet — intended to end the government "monopoly" of the Internet — there has been approximately 1,400 Teramanhours spent by nearly everyone, but particularly telco types, in trying to devise a method to control or "own" the Internet. This can be terribly difficult with over 4,000 vendors in a competitive environment.

But the Internet is quite hierarchical. Almost all of the 4,470 ISPs we count in operation in the U.S. and Canada as of December 1 get THEIR connection to the Internet from a relative handful of top-level backbone operators. And the distribution there is not very symmetrical either. These 4,470 ISPs, many of which sport more than one connection, have a total of 5,458 connections between them to backbones that we have some data on. MCI, Sprint, and UUNET, together provide 74 percent of those connections with about 30 other backbones splitting up the rest.

This month, WorldCom and MCI announced an agreement whereby they would mate and become one. My good buddy John Sidgmore actually quoted ***Boardwatch*** in an attempt to refute the charge that the merger would be anti-competitive, noting that there were over 4,000 providers. He rather neatly sidestepped the issue that over half of them all got their connections from either MCI or UUNET — effectively concentrating power over half the Internet under the WorldCom umbrella with this proposed merger.



And the power has grown more evident. Originally to get a connection to the Internet, you called a buddy, he said OK, and you were connected. This inevitably evolved into written agreements as the industry matured. Of late, these agreements have become so egregiously one-sided, demanding, and hysterically ridiculous that they should serve as textbook examples of the end result of a runaway judicial system. Just this last spring, UUNET, under Sidgmore, canceled all existing agreements with numerous ISPs. To even get to READ the new proposed agreements, ISPs were required to sign a Mutual Non-Disclosure Agreement, or MNDA. Even the perpetrators of these connection agreements have enough sense to be mortified and embarrassed to have the details of these agreements known. They essentially required the prospective customer to agree not to discuss the details now or in the future, whether or not they eventually signed one.

And with every agreement issued, a new clause is added to move some backbone provider's problem, either perceived or potential, from their desk to the desk of one of their customers. In turn, rank and file ISPs have begun emulating this with end-user agreements that are just a scream. The result is a totally irrational market for Internet connections with hundreds of different variations on the same basic product issued to hundreds of different customers depending on when they were signed, how big the customer was and how much leverage they had, and ultimately of course their willingness to put up with all this nonsense.

This was the trend in an essentially competitive market. With WorldCom's insatiable appetite for gobbling up everything in sight, including WillTel, MFS, UUNET, Brooks Fiber, CompuServe, ANS, and now MCI, they have very nearly pulled off the coup of the century — total control and ownership of the Internet. And there is apparently no limit. Current rumor even has them acquiring AOL next year.

And while the number of Internet service providers continues to grow, the number of national backbones they can connect to

is beginning to shrink. GTE has purchased BBN and now Genuity. Even PSINet which has struggled financially in the past two years despite continued growth, has now acquired Canadian backbone operator iSTAR. But the WorldCom acquisition of MCI places well over half of all Internet service provider connections under the thumb of Bernard J. Ebbers.

The FCC must of course review the merger. This is particularly interesting in that an almost entirely new Federal Communications Commission was sworn in on November 3, 1997. This would seem a good time to introduce who they are.

WILLIAM E. KENNARD
(Democrat) **wkennard@fcc.gov**



Nominated to the Commission and designated to serve as Chairman by President Clinton; confirmed October 29, 1997; sworn in November 3, 1997; term ends June 30, 2001. Chairman Kennard had been general counsel of the Federal Communications Commission since December 8, 1993. Previously, he was a partner and member of the board of directors of the Washington, DC law firm of Verner, Liipfert, Bernhard, McPherson and Hand. At Verner, Kennard specialized in communications law, with an emphasis on regulatory and transactional matters for communications companies, including broadcasters, cable television operators, programmers and cellular telephone providers. Served as assistant general counsel and as legal fellow for the National Association of Broadcasters. Born in Los Angeles, California. Graduated Phi Beta Kappa from Stanford University and received JD from Yale Law School. Member of the California and District of Columbia Bars.

SUSAN NESS (Democrat) **sness@fcc.gov**



Nominated to the Commission by President Clinton; confirmed May 19, 1994; sworn in May 23, 1994; term ends June 30, 1999. Previously, Commissioner Ness served as vice president and group head of the Communications Industries Division of American Security Bank. Her portfolio included companies providing cable television, radio and television broadcast, satellite telecommunications, cable programming, rural telephone, and wireless communications. Earlier, she founded and directed the Judicial Appointments Project of the National Women's Political Caucus to increase the representation of women on the federal bench. She also served as assistant counsel to the Committee on Banking, Currency and Housing of the U.S. House of Representatives. Her prior civic activities include chair of the Montgomery County Charter Review Commission, vice chair of the Montgomery County Task Force on Community Access Television, and president of the Montgomery County Commission for Women and a member of Leadership Washington. Born in Elizabeth, New Jersey, she holds a BA from Douglass College (Rutgers University), an MBA from the Wharton School (University of Pennsylvania) and a JD, *cum laude* from Boston College Law School. Member of the District of Columbia Bar.

HAROLD W. FURCHTGOTT-ROTH
(Republican) **hfurchtg@fcc.gov**



Nominated to the Commission by President Clinton; confirmed October 28, 1997; sworn in November 3, 1997; term ends June 30, 2000. Previously, Commissioner Furchtgott-Roth was the chief economist for the U.S. House Committee on Commerce. The committee has legislative jurisdiction over laws governing telecommunications. Was a senior economist for Economists Incorporated from 1988-1995. Served as research analyst for the Center for Naval Analyses. Born in Knoxville, Tennessee. Holds an economics degree from the Massachusetts Institute of Technology and a Ph.D. in Economics from Stanford University. Is a member of the American Economics Association and the Econometrics Society staff.

MICHAEL K. POWELL (Republican) **mpowell@fcc.gov**
Nominated to the Commission by President Clinton; confirmed October 28, 1997; sworn in November 3, 1997; term ends June 30, 2002. Was the chief of staff of the Antitrust Division in the Department of Justice since December 1996. Served as an associate with the law office of O'Melveny & Myers, LLP, where he practiced in the areas of telecommunications, antitrust, and employment law. Served as a judicial clerk to the Honorable Harry T. Edwards, Chief Judge of the U.S. Court of Appeals for the District of Columbia Circuit. Was a policy advisor to the Secretary of Defense for matters involving the United States-Japan security relationship. Served as a cavalry officer in the U.S. Army from 1985 to 1988. Born in Birmingham, Alabama. Graduated from the College of William and Mary with a degree in government. Received his JD from Georgetown University Law Center.



GLORIA TRISTANI (Democrat) **gtristan@fcc.gov**
Nominated to the Commission by President Clinton; confirmed October 28, 1997; sworn in November 3, 1997; term ends June 30, 2003. Served on New Mexico State Corporation Commission since 1994, where she was the first woman elected to that office. Served as commission chair in 1996. Served on the National Association of Regulatory Utility Commission's communications committee. Was an attorney in private practice in Albuquerque. Named one of the Nation's 100 most influential Hispanics by *Hispanic Business Magazine* in 1996. Born in San Juan, Puerto Rico. Received undergraduate degree from Barnard College of Columbia University and law degree from the University of New Mexico School of Law. Board member of the Dennis Chavez Foundation. Member of the New Mexico and Colorado Bars and the American Bar Association.



It is interesting that Kennard came from the antitrust division of the Justice Department — a doubly layered oxymoron. On November 10, the new chairman, William Kennard, issued the following statement regarding the proposed WorldCom/-MCI merger:

"We will carefully review this transaction to ensure that it will benefit American consumers."

There isn't much we can read into that. But rumors would indicate that the FCC is much more focused on competition in local voice telephone service than on the Internet. And that they view WorldCom/MCI as one of the few viable competitors emerging to take on the extant regional Bell operating companies. This could lead to the very interesting scenario that in the future we may well be able to reach WorldCom's Internet using any local carrier we choose.

Jack Rickard
Editor Rotundus



Letters to the Editor

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LETTERS TO THE EDITOR

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LAWLOR'S RUMORED DEMISE

Sir;

As a self-proclaimed member of the "angry wasps", who gather en masse to sting those foolish enough to send us junk email, and as a regular follower of the newsgroupnews.admin.net-abuse .email, I naturally was very interested in your recent commentary on Phil Lawlor and AGIS. I find your point about ISPs controlling "the content and activity of their users" very compelling, and I would like to add a point or two of my own for your consideration.

First, and fundamentally, the practice of sending unsolicited bulk email (UBE) is abuse _of_ the network. The admins and ISPs who have acted against AGIS, other ISPs, and their own subscribers, have done so to prevent the email system from being overwhelmed by UBE. Theirs is not an issue of content; like the Usenet spam cancelers, they are attempting to prevent or counteract a form of abuse of the network based on numbers. The major difference between the two, as far as I can see, is that there is such a thing as legitimate, solicited, bulk email, whereas no one has yet discovered a valid reason for massively posted messages on Usenet; inasmuch as they wish to prevent destroying solicited bulk email along with unsolicited, content is considered.

So, while you are quite possibly correct in your assertion that ISPs, by acting against AGIS, have given themselves the task of controlling their users' activities, I believe that it is a task many of the 'grayer heads' among them had long assumed, and one that the newer ISPs would do well to emulate. As long as it maintains its content-neutrality, it is not something that can be turned to the agenda of the latest politically correct rantings.

Second, many see UBE as theft of resources; the time, bandwidth, CPU cycles, and storage space consumed are in many cases privately owned; defending that private property against misuse has been upheld in the courts (AOL vs. Cyberpromotions, among others). Acting as a group to stop such theft, does not necessarily imply that the same group will join forces again for other purposes.

Speaking for myself, I would rather have cases of system abuse handled as locally as possible; user to ISP, or, if they fail to act, by their peers in concert, to generate pressure on them to act. It's as libertarian as the system can be while still maintaining some level of usefulness. Should I begin to hear the words, "universal service", in close proximity to "internet access", emanating from the vicinity of the Potomac, your fears will have far greater weight, and you will find me standing right beside you.

Thank you for your time and consideration.

Best regards, WD Baseley

Mr. Baseley:

I have no issue to take with the theft of service concept. I view it as precisely such. In fact, I hear no cogent debate in defense of spam at all.

The entire issue revolves around solution — interim and long term. I think the ISPs have made a poor choice in cannibalizing their own, and in demonstrating that some very rough sledge hammer type control is possible. The move from the Potomac becomes a matter of when not if. And we have established that ISPs are the pressure point where control can be applied.

From the government regulation viewpoint, we simply need fewer ISPs, and some basic regulatory tools, and we can control anything on the Internet. Their issue is going to go more to commerce and tax matters — not spam. Meanwhile, we also have an endless series of advocacy groups who now know where to go to be most effective.

We would view the concept of complaining to the telco over telephone solicitations or politically incorrect conversations as an absurdity. Yet the "grayer" heads have already conceded the concept with regards to the Internet. I would posit they are in for a lot more gray, and some really bad hair days, over this very poor choice.

And in a broader sense, they give the spammers themselves a free ride. Avoiding the expense and bother of litigation, they have opted for the easy pressure point — other ISPs. The spammers face no consequences. Unfortunately, this cheap and local solution is no solution at all. Until those who do abuse the network actually have to pay an economic price for doing so, it won't halt spam. It won't even slow it.

End users must be accountable for their actions. Making the middle man accountable is always easier. But it doesn't accomplish the end. In this case, it has even worse side effects in that it makes the middle man, the ISP, the whipping boy for all ills on the Internet.

These people simply haven't thought this through. They gain some emotional satisfaction in demonstrating they are not powerless. But they accomplish nothing, and exacerbate everything.

Jack Rickard

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ISP'S ATTACKING AGIS?

Greetings,

Your article about ISPs attacking poor AGIS fails to consider a few things:

1) ISPs and their equipment are private property. Their owners have no obligation to carry free advertising of any kind for AGIS customers.

2) Spammers hijack mail servers, forge their identities, violate trademarks, divert complaints to uninvolved parties, crash mail servers they have no business using, soil the reputation of companies, etc.

3) Spammers have nothing to offer accept pornography solicitations to people of unknown age or morality, get-rich-quick scams, illegal chain letters, quack cures, spamming software and mailing lists they obtained by violating the terms of service contracts with service providers, and harassing messages that try to sell nothing at all.

Kindly send me your home address so I can post my advertising on your property.

I recommend you read up on some of the latest court cases involving Cyber Promotions, Over the Air Equipment, etc.

Thanks, Mark

My article considered all those things and a lot of other things actually.

ISP's "private property" has no role in this at all. They rent their property to their subscribers and so forfeit sole use and benefit of the property of course. Under the Electronic Communications Act of 1986 they are actually committing a crime if they intercept or otherwise hamper delivery of mail, including spam actually.

Commerce is a growing part of the Internet and a valuable part to both marketeers and end users. Inappropriate and unsolicited commercial advertisements by electronic mail are threatening the utility of e-mail itself and a solution to this problem is imperative.

My home address is 14322 West Belleview Ave, Morrison, CO 80465.

I have read all the court cases we can find. It is interesting that you cite them. They tend to hold the spammers responsible for their actions, not the ISP, and I can find no case where an ISP has been successfully sued for carrying spam. But to bring these cases, a certain expense and bother is incurred. And a small, vocal, and utterly moronic group on the Internet doesn't want to face that bother and expense, and would rather beat up on ISPs instead. They establish a precedent in doing so with horrifying implications that they poorly understand and apparently in some cases don't understand at all. That is what CLUELESS is about.

Jack Rickard

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SPAM EDITORIAL

Hi, Jack!

You're all wet on spam and ISPs. The issue is not censorship, it's theft. I don't care if the content is porn or poverty, the content is not the issue. The method is the issue. Spammers flood our mail servers, denying access by our customers, and raising the cost of doing business by e-mail.

Is it wrong to ask AGIS to quit providing safe harbor to spammers? I don't think so. If one of our customers spams, we kill the account. Content is not the issue; spam is the issue. AGIS, by providing safe access to the spammers, gives them an immune location to send millions of messages per hour that the rest of us have to pay for.

Our customers don't like it either. One owner complained that it takes 45-90 minutes on Monday to download his mail and that more than 75% of it is spam. (And more than 80% of the spam had an AGIS protected Web site.)

We don't like cancelling customers, trying to filter moving targets (who steal mail resources from open SMTP ports), or blocking domains. However, until something like the Smith Bill becomes law, these efforts are our only defense.

We are preparing, for the first time, to block specific domains. We are giving *serious* consideration to the blocking of all AGIS traffic. Our customers come first and we have to defend our business. It's like neighborhood football: if one of the bullies won't play by the rules, the best alternative is to not play with him.

AGIS thumbs its corporate nose at the rest of the Internet; it shouldn't be surprised when we start turning our backs. Kicking Cyberpromo et al off becomes a token gesture if the other AGIS-hosted spammers continue to get a free rein.

Steve Wallace

I'm all wet all over, and it's not limited to spam.

That said, there is a movement to declare spam not a content issue. This is absurd. Content defines spam. Shrilly insisting it is otherwise is a moronic exercise in self entertainment.

You have moved responsibility for spam from the spammer to AGIS. Whatever inconvenience you find in spam to yourself or your customers, and how outraged you are by the "theft of service" aspects of spam is largely irrelevant. You are demonstrating that responsibility lies with ISPs that "harbor" this activity, not with those who perpetrate the activity itself. This is a terrible precedent, and a very poor choice as an ISP. It will haunt you for years to come.

Remember where you heard it first.

Jack Rickard

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ISPs AND SPAM

Your basic premise — that ISPs should not be expected to exercise editorial control on their user's online material — has merit in the fundamental sense. However, you barely acknowledged the need for *some* solution to the mounting problem of spam.

You described telemarketing as a situation analogous to today's "spam problem." I was surprised to find that you did not choose to mention the 'industry' most akin to today's spam — junk fax. At one time, unsolicited commercial fax messages were a major problem; each one consumed tangible resources, and there was a large population of active (and potential) advertisers in the medium. Why did that 'industry' die? The answer is found in the Telecommunications Consumer Protection Act (TCPA), which specifically banned the transmission of "junk fax." The similarities between the "junk fax" of years past and today's "junk email" are striking, in terms of prevalence and costshifting; why would a similar solution be inappropriate?

There are several pieces of relevant legislation before this session of the US



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Congress. From my perspective, the most promising of these is HR 1748, the Netizens Protection Act of 1997. Introduced by Representative Christopher Smith of New Jersey, HR 1748 is a very simple piece of legislation; it amends the TCPA to extend the "junk fax" prohibition to "junk email." What could be simpler — or more effective?

This approach neatly solves the question of ISP liability. As imple- mented by the FCC, the TCPA does *not* hold the transmitter liable for junk faxes; rather, it assigns liability to the advertiser(s) cited in the content of the junk fax. If we assume a similar implementation of a junk email ban, ISPs would not assume liability for spam.

The enforcement mechanism of the TCPA is worthy of mention; it allows parties to secure relief through civil procedures. In other words, the person receiving a junk fax can bring action in Small Claims Court, with no need for attorneys or intricate legal manuevers; intentional or willful violation of the law can result in trebled damages. Applying a similar enforcement mechanism to junk email would relieve virtually all of the "ISP pressure" to which you allude. Who would spam, knowing that every recipient could receive $500 in Small Claims Court? Who would spam, knowing that they could face legal action in a multitude of jurisdictions? Who would spam more than once, knowing that repeat offenses can result in a $1500 fine for each message?

In conclusion, it would seem that a legislative prohibition of un- solicited commercial email (aka junk email, aka "spam") would implement the very scenario for which you hope — ISPs would be relieved of liability, ISPs would have no need to exercise editorial control, spammers would bear responsibility for their actions, and I believe that we would see the "spam industry" follow the path of its "junk fax" predecessor. Is there anything wrong with this picture? I think not.

I urge all concernced parties to contact their Congressmen and express support for HR 1768. Further information may be obtained from the Coalition Against Unsolicited Commercial Email, (**http://www.cauce.org**)

Regards, Wes Morgan

Wes:

I think it's a bit evident that "some" solution is necessary and I think I made that case rather strongly in the editorial. The Telecommunications Consumer Protection Act is quite appropriate and in fact that was what I was advocating — holding the spammers directly responsible for their actions — NOT the middle man.

I do like the telemarketing example because it involved no legislation at all. End users armed themselves with answering machines and made the economics of telemarketing untenable. But at this point, spam has reached such epidemic proportions that I would advocate the legislative solution. There is no underlying cost basis for sending forth millions of e-mail messages. Indeed, a small but notable percentage of spam is from spammers offering mailing lists and software to allow me to spam as well.

I think you are on the right track. There needs to be some consequence for spammers quite beyond simply being cut off from the network — temporarily as it turns out in most cases. And we need to get off the concept of ISPs regulating, or being held responsible for, any content on the network.

Jack Rickard

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AGIS, PHIL LAWLOR AND SPAM

Your portrait of Lawlor as the one clear thinker among ISP executives seems somewhat misguided. While his overriding perspective — that ISPs should not be expected to exercise editorial control over their customers — is meritorious, his implementation of that idea left much to be desired.

Lawlor's hand in the creation/support of the abortive IEMMC was instructional. Many promises were made, yet few (if any) were satisfied. It was reported, by several individuals, that brand-new, previously unused addresses submitted to IEMMC's "master remove list" immediately began receiving spam; the "master list" itself was apparently "lost" on at least one occasion. A domain-level opt-out (i.e. "remove all woofmeow.com addresses") was promised, but it was also plainly stated that any domain requesting such a service would be promoted as an "Internet CENSOR" and villified for a request of such impropriety. Are we expected to see these positions as indicators of desirable "Internet ethics?" I have difficulty viewing them in such a light.

You can argue Lawlor's motives as much as you like, but his actions did not scale the heights at which you retroactively placed his moral/ethical positions.

Regards, Wes Morgan

Phil Lawlor is a very difficult man to defend. He can be counted on to phrase any position in its most awkwardly jumbled form. His thinking is actually not as muddled as it sounds when it comes out of his mouth. His basic position, and I think I did understand it in its original form when I first heard it a year and a half ago, was that he ran a network, he had customers, and what they did with it was none of his business. This has been reinterpreted as he was willing to look the other way if they spammed. I think it was actually right thinking that it was no more an ISP's business what was in your e-mail than it is the telco's business what you say in your private conversations. But Mr. Lawlor has an uncanny ability to snatch defeat from the jaws of victory. His activities in setting up the truly moronic opt-out list not only didn't work, but it exacerbated his problems and posed serious damage to his position in the community. This is doubly inexplicable when you consider that the vast bulk of his business is not with spammers, but with ISPs. Our database would seem to indicate that about 350 ISPs get their connections through AGIS.

Truly a muddled situation. And certainly, I would prefer a more pristine figure on our cover crucifix. Mother Theresa having passed, I was stuck with Phil. Nonetheless, Lawlor's basic position, I think, was the correct one, however artlessly conveyed, and I do see some terrifying precedents and dangers in the imbecilic response from his detractors among the anti-spammites.

Their basic position, as I understand it, is that something must be done, even if it is a stupid something. I do hope cooler, more thoughtful heads prevail. The anti-spammites have done nothing, I repeat NOTHING to stem the flow of garbage into my mailbox, and they threaten to cause permanent and irreversible damage to this network with all their muscle flexing, preening, and public posturing. They are persuasively angry, but largely dangerous as a Net mob.



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If it helps, I just received a message from a man looking for a woman he saw on a ride in Disney World. He regrets he didn't ask her out or at least say something to her. He has sent out millions of copies of a six-screen message noting that she was wearing sandals and her mother was in a wheelchair. If we know her name and can provide a photo, he's offering a $500 reward. I got teary just reading it.

Gag — retch. I hope they are very happy.

Jack Rickard

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SCREEN-SHOT ARTICLE REQUEST

I've been a subscriber to BOARDWATCH for many years now and I don't believe I've ever seen an article on how one gets screen shots into print.

The quality of screen shots in BW has gotten better and better (e.g., pp. 92-93 in the October '97 issue) and I'm most curious about the process you use to nab 'em and print 'em. Moreover, I think that many of your readers may also be interested—as we struggle to do newsletters and tech support brochures on computer matters.

I'm familiar with the use of PrtScrn (and Alt-PrtScrn) in Win95 to grab the screen, but I've had limited success printing such screen grabs. Could you illuminate me, or point me somewhere where I can read up on it?

Thanks!
Jeremy Butler
Associate Professor
Telecommunication & Film/
University of Alabama/Tuscaloosa

Jeremy:

We were probably the first publication to successfully print screen captures and it took us quite a bit of experimentation to get there. The problem is that what you see on the screen and what appears on a four-color process page are only related by approximation.

Currently, we capture the screen using the ALT-PRINTSCREEN key which works well enough. This puts it on the clipboard. We then bring up Adobe Photoshop and paste the screen into a new document. I usually then enlarge the image by retaining the size constraints, and upping the resolution from the 72 dpi used for screen displays to 266 dpi which is what we need to print. We then convert the image from RGB to CMYK. This rather flattens the colors. I usually bump both brightness and contrast about 10 points to get some of the color intensity back. Then make any cropping/changes/additions desired. Then save as a 266 dpi CMYK TIFF image.

We've used a variety of printers, and all seem capable of dealing with 266 dpi CMYK TIFF images directly. Anything else they have to manipulate, and this gives them a great opportunity to hose it up. So we deliver 266 dpi CMYK TIFFs and it usually comes out pretty well.

Jack Rickard

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SPAM (NOW YOU WON'T READ THIS)

Jack,

You said it, "If I had a penny for every unsolicited email ..."

Exactly. Why not have a penny? Why don't ISP's join together and say that there is a postage paid to the RECEIPIENT for email. The ISP's could cross charge each other and then add any differences to there customers monthly statement.

If necesary, the receiver could re-fund the money if the email was of use.

If an ISP only accepts/routes email from ISP's that agree to abide by the 1p to the receiver rule, then within months spam will stop.

Ok it may have to be 10 cents or even a dollar. it makes no difference as the receiver can refund it.

ISP's no longer have to "control" content.

It must be possible?

Regards,

Bob Morse.

Actually, it's not a bad idea Bob. I like it. Let me ponder this a bit.

Jack Rickard



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GROWTH AND PROFITS

Dear Jack,

Every so often in the midst of your otherwise uncannily perceptive and accurate observations you come up with one so far off-base that I wonder if you really mean it.

Your statement in the Nov 97 issue, page 22, that the only goal of business is growth is not, and cannot be, true. A business which never earns a profit is going to die, and the world of business is strewn with the corpses of enterprises who believed, as you seem to, that they really could "lose money on every widget they sold and make it up in the volume." As long as growth can be achieved profitably, it may very well be the preferred course of action, but unprofitable growth is like cancer — it will eventually kill you.

The only cash available to invest in growth is 1)the excess revenue left after paying expenses including taxes, which is profit (yes, I am well aware you can manipulate this with non-cash expenses such as depreciation); and/or 2)cash raised either by borrowing or selling common stock, which no rational investor will buy without expecting a return generated by future profits. As onerous as income taxes are, the higher the profit — and therefore the higher the income taxes generated by this profit — the greater the amount available for growth and/or return to your investors.s.

These are very fundamental principles, and are too often ignored or not understood — one important reason why so many businesses fail..

Finally, as I have written you before, I do not appreciate one little bit your penchant for answering letters from readers with gratuitous insults. It adds a mean-spirited and jarring element to your otherwise excellent publication.

Dick Bellin

Dick:

Ultimately all profits are zero — Economics 101. Growth is all there is. In this particular industry, it's all anyone wants anyway for other reasons which I hesitate to question.

You are quite right on one point: the notion of profit is a widely misunderstood concept. Much of our readership, yourself included apparently, equate profits with cash laying around on desk tops at the end of the year. If you have excess revenues to plow back into your business to fund growth, that IS profit. Managing cash flow is a fundamental challenge for everyone in all businesses — even magazine publishing. But it is only indirectly tied to whether or not the operation is profitable. My observation of the Internet service provider business would indicate that they are somewhat single-mindedly focused on future market share — actually not quite the same thing as growth, but certainly a related topic.

This is occurring at all levels and fairly universally. My own opinion as to the wisdom of this is entirely moot. WorldCom cannot pay $37 billion for MCI and ever operate "profitably," to my way of thinking, in my lifetime. But they can gain an enormous chunk of market share of the Internet in doing so, and there are all sorts of perceived benefits involved there. I can just as easily show you two guys in Idaho who take home nearly $800 per month each — but they are growing their rural ISP business at over 100 percent annually. It is not precisely my place to note that 4,400 ISPs are right or wrong. It is interesting that I note what they are doing and posit as to the rationale.

Finally, if you don't want an answer, don't write. But we have a little deal going on here in the Letters section. Readers write what they write and we publish them pretty much as they are — unedited and uncensored. I might correct a glaring spelling error if I am feeling kindly toward the correspondent. The tradeoff is that after they write, I get to reply. This is an embarrassing historical legacy arising from my early ignorance of the format of most letters to the editor sections. But it has proven a popular mistake. You may dictate the contents of your letter in, not the contents of my letter of reply. This is the nature of conversation. All correspondents get to control THEIR end of the conversation. But they are in bad form if they attempt to control the OTHER end of the conversation.

For this reason, and no other, I'll refrain from further comment beyond my estimation that you're a pompous twathead. I don't mean to be mean spirited. But I don't mind jarring elements actually.

Jack Rickard

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IP TELEPHONY

Dear Jack:

I begin with the obligatory yet heartfelt obeisance to *Boardwatch* and your column. I recently spent a few hundred hours as a non-technical person trying to make sense of the Layer 3 ATM vs. IP debate and I found yours is pretty much the only magazine that cuts through the hype, hope, and bullshit and looks at the datacom industry with an objective eye.

This summer I watched the wheels come off the enterprise ATM bandwagon, and without a doubt fax and intracompany voice are migrating toward the packet switched network. Maybe public packet switched voice will begin as a service to corporate customers. Now the phone companies and switch makers who derided IP telephony are investing in companies like Juniper and preparing their service offerings as well (I was startled to learn that ATT offers IP telephony to 36 cities—in Japan). Although the current Internet can only handle about 5% of voice traffic, I think the world's most innovative industry will find a way to rise to the challenge.

My question is, does *Boardwatch* have plans to rate the performance of various backbones for voice traffic (with some sort of quality metric)? This sort of benchmarking might jumpstart the IP voice telephony business (to mix a metaphor).

Thank you!

Peter Lee

P.S. I am a cash money subscriber—I don't just mooch off your Website..

Peter:

One of my favorite types of subscriber indeed.

IP Voice is a curious item. I'm not certain the current Internet CAN handle 5 percent of voice traffic as it is currently operating. My best guess is that we would need about 3 Internets to do that. But it is not a static situation. Some 5,000 miles of fiber are going down per day at this point. Wave Division Multiplexing (color channels, if you will) has already enormously increased bandwidth per strand. Two separate groups demoed 2-Terrabit switches nearly two years ago. There are no scientific or even at this point engineering "ceilings" to bandwidth, as I predicted several years ago. But there are some economic barriers. The largest Internet backbones are very much in the mode of selling Internet that is "good enough." They still would very much like to see some form of penny-per-pixel pricing to turn this into the kind of goldmine they prefer. And they haven't quite worked out just how to make that happen. I personally think the new and hungry players after the fashion of GTE, Qwest Communications, and perhaps even AT&T if you count them as a "new" and hungry player, may do so.

Voice will first USEFULLY appear as a web adjunct. Harry Newton, of Computer Telephony *fame, has his office set up so that subscribers can simply click a button on the Web and someone will answer the phone. We actually did this over a year ago, but I didn't really like the interruptions my own personal page caused. We'll probably try again in the business office. I think this has a lot of life. That's where I think voice over IP will start.*

The next sign to look for though is the more generalized IP telephone number on a business card. I'm guessing this will look something like this:

IPVoice: 199.33.229.10. It could of course be NetVoice or VoiceNet or InternetVoice but I'm guessing it will be IPVoice.

This is your cue to run screaming from the room. It will sweep the country in just a few months — obviously a sign of daring early adopter, but it will become very much in vogue. And it will indeed cause traffic problems.

Yes, we'll probably come up with some scheme to rate backbones on voice. But again, it is the interconnectedness of the Internet that poses its most frustrating design feature. If you are on the GOOD backbone, but I'm not, the voice quality will be a function of the least capable link.

Jack Rickard

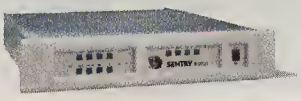
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ISP's, How Do You ReBoot Remote Equipment?

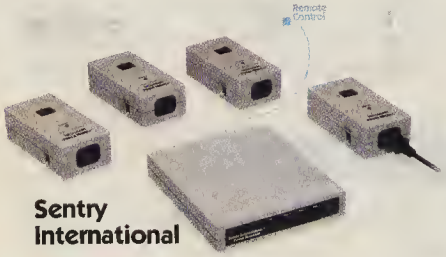
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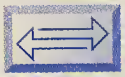
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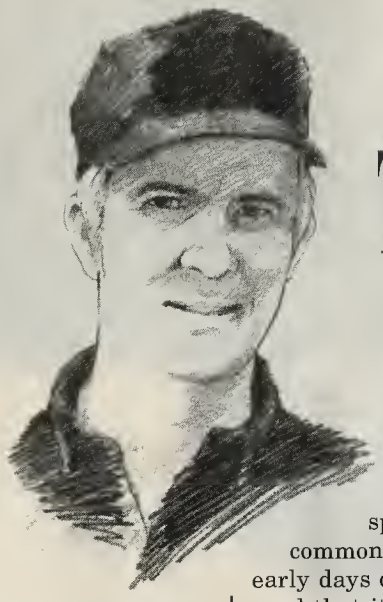
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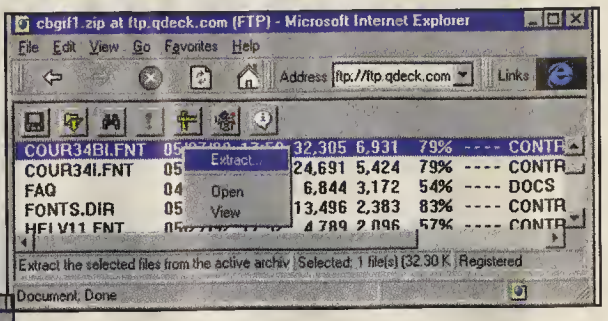
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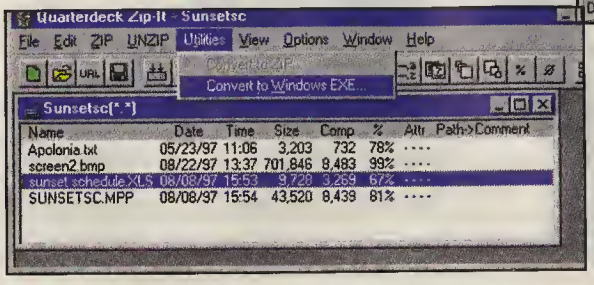
by Jim Thompson
Western News Service

CUTTING OUT THE FAT—ZIP-IT VS. WINZIP

Jim Thompson is managing editor of Western News Service in Los Angeles, California. He receives mail at jim.thompson@wnsnews.com

When it comes to archiving files or large uploads and downloads, compressing your data with an archiving utility saves both time and space. The Zip format has been the most common type of archive/compression since the early days of personal computers. Zip is so widely used that it is recognized as the standard for PC-based archives.





An archive file contains other files in a compressed format. This is normally done to conserve disk space and/or reduce the amount of time it takes to transmit the file or files to some other location. A Zip program works by analyzing the original data. It then represents that original data with less data. In some cases (such as with plain text files) the Zip program takes out things like the spaces between words, in other cases it might create a map of the original information. It's like a crash diet for overstuffed files.

Along with this deletion of data, the program also creates instructions on how to recreate the original files. The result of all this is a file that can be substantially smaller (as much as 98 percent) than the original. The original information can be extracted from the archive when needed.

This month, I'll look at two of the most popular Zip programs — Zip-It version 4.0 from Quarterdeck and WinZip version 6.3 from Nico Mak Computing, Inc.

ZIP-IT

The latest version of Quarterdeck's Zip-It includes some interesting Internet capabilities. Using Quarterdeck's I-Zip client/server technology, you can select files in a Zip archive for viewing and/or extracting without downloading the entire archive. In other words, you don't have to download the entire file, then run a separate program to view or extract the contents of the archive.

Plug-ins are available for Netscape Communicator, Netscape Navigator, and Microsoft Internet Explorer. When communicating with an I-Zip-enabled server (a server that supports the I-Zip protocol), the plug-ins provide point and click convenience to open Zip files in web pages or FTP sites. After clicking on the Zip file you want to open, a request is sent to the server (I-Zip enabled) to display the contents of the Zip archive. The server software sends the list of compressed files in the Zip archive to the client which is then displayed in the browser. From here you can view, edit or extract individual compressed files or save the entire Zip archive on your hard drive.

When encountering a Zip file on site that does not have an I-Zip-enabled server, the browser pops up a small window that displays the progress of the download along with the Zip-It plug-in interface. Once the file is received, the interface checks the integrity of the Zip file, then displays the contents of the archive. From the plug-in tool bar, you can save the file, extract selected files, view selected Zip files (in their native application) or execute (extract) a self-extracting Zip file. You will also find useful information like the number of files in the archive and the total uncompressed size of the files. All of this is available without having to leave your browser or manually load another program.

Zip-It integrates directly with the Windows 95 or Windows NT desktop, or with Explorer. When you right-click on a file in any of these environments, you will see two new options, "Zip-It Add" and "Zip-It in Place." Clicking either option launches the Zip-It program. "Zip-It Add" lets you add the file to an archive, while "Zip-It in Place" automatically zips the file and offers the option to delete the original file.

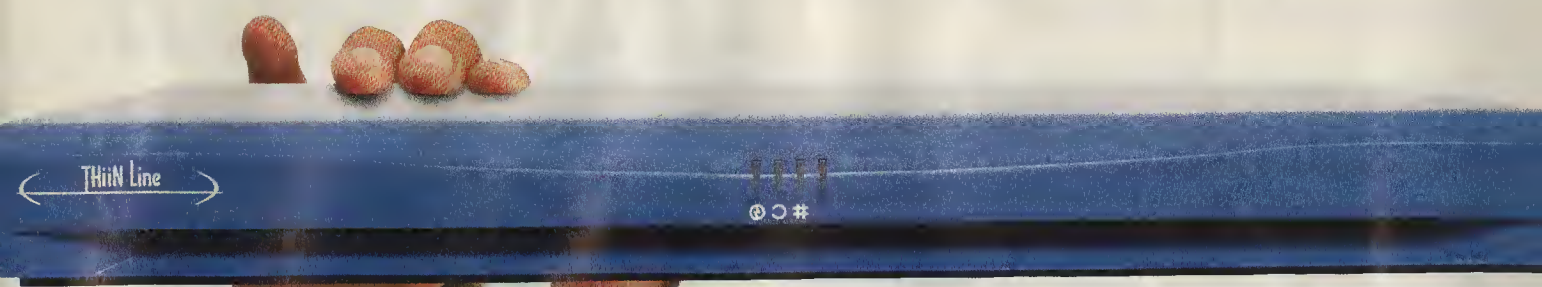
When selecting a file that is already zipped, two additional options are added — "Zip-It Extract to"

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and "Un-Zip it in Place." When selecting either option, the Zip-It program is again automatically launched. The "extract to" option lets you choose where to place the extracted files, while the other option unzips the file in the same directory.

Zip-It also allows for both drag-and-drop and "quiet drag-and-drop." With drag-and-drop simply drag the icon of an archive file onto the Zip-It program icon. This launches Zip-It and displays a list of files in the archive. From here, you can open, view, add, extract selected files, print a list of the contents or search all files in the archive.

Quiet drag-and-drop lets you add files to an existing Zip file without ever seeing a dialog box or manually starting Zip-It. This is done by selecting "enable quiet drag-and-drop" in the Options menu of the program.

Zip-It supports TAR, ARJ, LHARC, and GZ formats, and can convert these archives to the ZIP format.

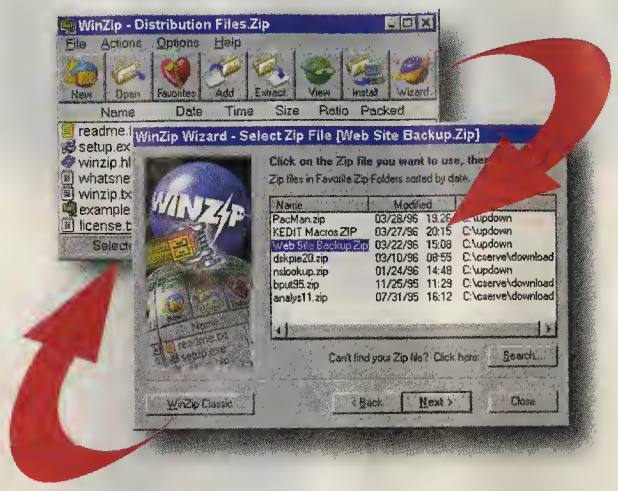
If you want to put your archive file on a diskette, but it is too large to fit (larger than 1.2 Megabytes), Zip-It can be configured to span disks. You can also instruct Zip-It to format or wipe your disk before copying the archive file. You can choose password protection for the file, recurse subdirectories and the create self-extracting files (for use by those who may not have an unzip program). Other options include the ability to freshen, update, move and delete files from an existing archive or to convert the archive to a Windows executable (.exe) file. All of the options are available from menus and easy to execute.



WINZIP 6.3



Although the latest version of WinZip (ver. 6.3) does not ship with Internet browser support, a downloadable add-on is available on the WinZip web site (**www.winzip.com**). The add-on provides the ability to download and open Zip files from the Internet with one click of the mouse. It works with Netscape Navigator, Netscape Comm- unicator and Internet Explorer. WinZip also lets you open and extract UUencoded, XXencoded, BinHex, and MIME files (base64, plain/text, and quoted-printable) which are often used for Internet mail.



When downloading a Zip file on the Internet, the WinZip program is automatically loaded after the download is complete. From here you have full access to all of the features of the program. These include options to open or view individual files in the archive, or extract the entire archive.

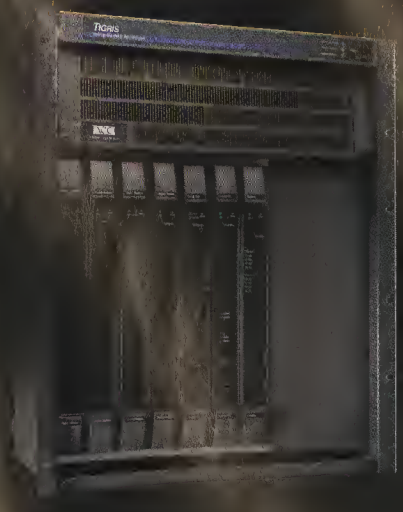
WinZip has two interfaces from which to choose. For the novice user, there is the Wizard interface. This interface automates many of the most common tasks, making it easy to get started for those new to using Zip files. It is also easy to find downloaded Zip files since they are listed, by date, in a "frequently used downloads" folder. A search feature is also available for finding lost files. If a Zip file contains a "setup" or an "install" program, the WinZip Wizard unzips the file then runs the installation file.

Once you are accustomed to working with Zip files, switching to the Classic interface is just a mouse click away. From the Classic interface you can create new archives, freshen and/or update old ones, delete files from an archive, view individual files in an archive, move files into or out of an archive, add password protection, or convert a Zip file to an executable. In addition to displaying the individual files (includes the name, date, time, and amount of compression), the main screen on the Classic interface also displays the uncompressed size of the files.



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WinZip integrates extremely well with Windows 95. Once installed, WinZip options become part of the Windows 95 right-click menu options when working with files in Explorer and on the desktop. If you right-click on any file, two new options appear in the menu — "Add to Zip" which lets you add the file to an existing archive and "Add to (file_name)" which lets you zip the selected file under the same name.

When right-clicking on a Zip file, three options are added to the menu. "Extract to" lets you extract the file to a specified directory. "Extract to (folder)" is a quick way to extract the archive to a subdirectory (with the same name as the selected file) under the current directory. "Create Self-Extractor" lets you quickly create a self-extracting file.

Extensive drag and drop features have also been added to the latest version of WinZip. From WinZip you can drag a file to the Explorer and the selected files are extracted to the selected directory. A file dragged to the printer is printed, one dragged to an open application is opened in that application. An archive file dragged from Explorer to WinZip is opened. You can add files to an archive simply by dropping them on an archive file.

Within the WinZip program, there are also a number of features that makes things easier. For example, Explorer-style mini icons are displayed next to files in an archive to help identify the file type, the Delete Archive operation moves archives to the Recycle Bin rather than permanently deleting them, the Rename, Copy, and Move operations use the Windows 95 "overwrite" user interface and Zip files opened with WinZip are added to the Documents folder in the Start Menu. WinZip also supports long file names.

WinZip comes with the Personal Edition of Self-Extractor, which allows you to create self-extracting Windows archive files. The basic functions are here, but if you are creating files for distribution, you will definitely want to purchase WinZip Self-Extractor 2.1. This program adds features that automate and customize software installation. These include the ability to specify an icon and text for the self-extractor dialog box, to delete temporary files and to run a command after running a set- up program. There is also support for the InstallShield 3.0 setup program. You can create a single Zip file that runs un-der DOS or Windows and create self-extracting files from the command line. All self-extracting files can be created with English or German messages.

Under Windows 3.1 the "Install/Uninstall Feature" makes it easy to install and uninstall software distributed in archives. WinZip will run the installation program in an archive, give the user a chance to try the program, and optionally offer to restore the user's system to its original state. The uninstall step can selectively remove folders, files, icons, or program groups created by an install program, and can restore any altered .ini files.

Another nice feature is the CheckOut facility. With this option, if an archive doesn't have an "install" or "setup" program, you can try the files in the archive. The CheckOut facility extracts all files and creates a program group with icons for all or some files. From here you can double-click on an icon in the CheckOut group to view the corresponding file with the appropriate application. Later, WinZip will optionally delete the CheckOut files and program group.

The newest version includes disk spanning support for multi-disk Zip files. With this ability, if you create a Zip file on diskettes and the first diskette fills, then disk spanning is automatically activated and you are prompted to put in a new diskette to continue the archive. There is no need to specify that you want to span before you start creating the archive.

CONCLUSIONS

Both Zip-It and WinZip are excellent programs. They are easy to use and contain powerful features. For documentation, I give the edge to Zip-It from Quarterdeck. The manual is clear, concise and provides a ready reference to all of the program's features. The online documentation is equally complete. WinZip does not come with a manual, however there is extensive online help that should prove adequate for most users.

I also like the Internet capabilities of Zip-It when communicating with an I-Zip-enabled server. The ability to preview and extract only selected files

To get any of these names:

.firm .shop .web .rec
.arts .info .nom

...remember this one

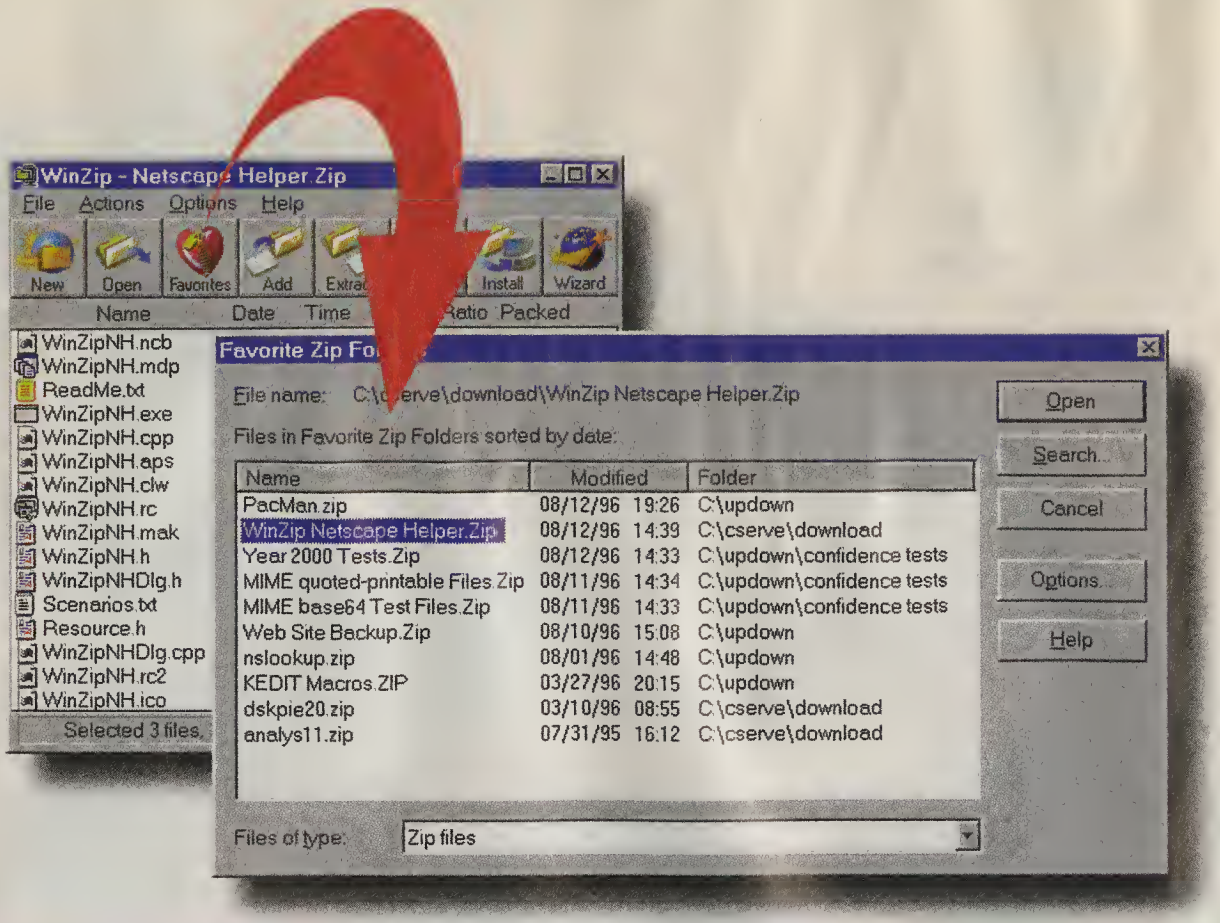
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without the need to download the entire archive is extremely convenient. Of course, these features are not available on servers that are not I-Zip-enabled, so you may not have much of a chance to use this feature.

While both programs are good, WinZip is my personal preference. Feature-for-feature, WinZip wins hands down. New users will find that the Wizard interface is a quick and easy way to get started using archive files. Once up to speed, the novice (and the experienced user for that matter) will find the classic interface to be easy to use.

WinZip also has an extremely impressive list of capabilities. I especially like the CheckOut feature and the way the program integrates with Windows 95. I also appreciate the fact that it will open and extract UUencoded, XXencoded, BinHex, and MIME files. I get these files over the Internet all the time, and having a program that handles them as easily as WinZip is a real joy.

For my money, WinZip is the best choice.◆

CONTACTS:

Zip-It
Quarterdeck Corporation
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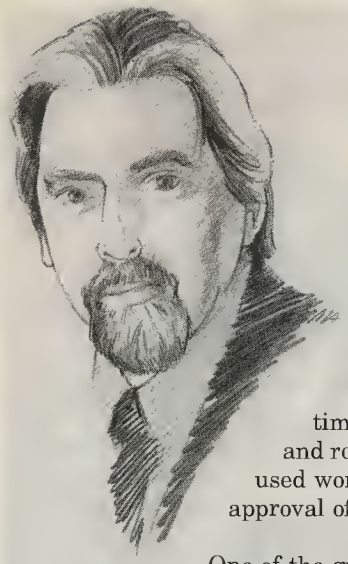
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@INTERNET by Thom Stark

THE RIGHT TOOLS FOR THE JOB

I came of age in the late 1960s. Like most who grew up in that topsy-turvy time, I wore my hair long, listened to rock and roll music, smoked the occasional joint and used words like "far out" and "groovy" to express approval of those things I really liked.

One of the grooviest things about the Sixties was the art form known as underground comix (spelled with an "x" to distinguish it from the kind DC and Marvel published). I dug the heck out of the late Gilbert Shelton's work, (he of the *Fabulous Furry Freak Brothers* and the *Doings of Dealer McDope*), but my main comix ax was *Zap*—and the ubiquitous R. Crumb's Mr. Natural was the very embodiment of its psychedelic, Zen perspective.

Mr. Natural was often as hapless and beset by circumstance as any of Crumb's more obvious *schlemiels*. However, unlike others, such as Flakey Foont and Schuman the Human, ol' Natch never lost his cool and he often had quite hard headed, practical advice for those characters who, like Flakey and Schuman, were less well-favored by their creator.

My favorite Mr. Natural panel shows him perched atop a tractor, harrowing a hemp field. The caption reads, "Mr. Natural sez, 'Get the right tool for the job!'"

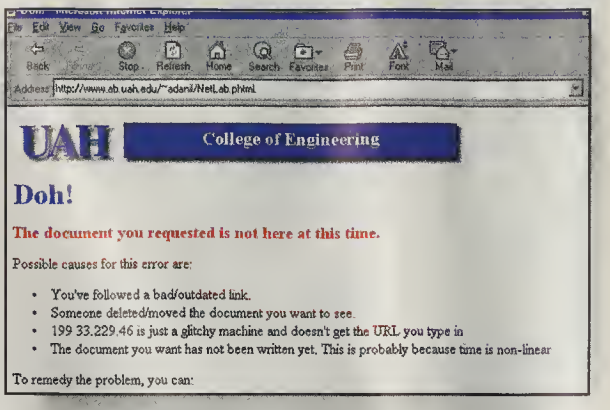
1998 is going to be a big year for the Internet. Telephone local exchange carriers are finally starting to roll out xDSL to their bandwidth-hungry customers and cable multi-system operators are doing likewise with cable modem access. The big ISPs (mostly long-distance phone companies and AOL) are starting to gobble up the little ones as if they were salted peanuts. This past Christmas' crop of sub-**$1,000** PCs are going to cause the Internet user population to really *explode*, any second now. And all those things mean the bar of competition in the ISP industry is soon going to be raised to Olympic heights.

Your job is about to get a whole lot tougher—and you'd better be sure you've got the right tools for it.

MAPPING THE TERRITORY

Any network tech worthy of the title has to be able to diagnose and monitor the health of his or her network. You can't afford to guess, because guessing wrong will cost you bandwidth, up time and customers.

Luckily, there are a goodly number of such tools available, in a range of prices that makes at least the basic ones affordable to nearly anyone. (And, by "basic," we're talking a step or two beyond WhoIs, TraceRoute, Ping, Finger and nslookup—all of which are available for Windows95/NT in Alex Danileiko's freeware program NetLab at **www.eb.uah.edu/~adanil/NetLab.phtml**.)



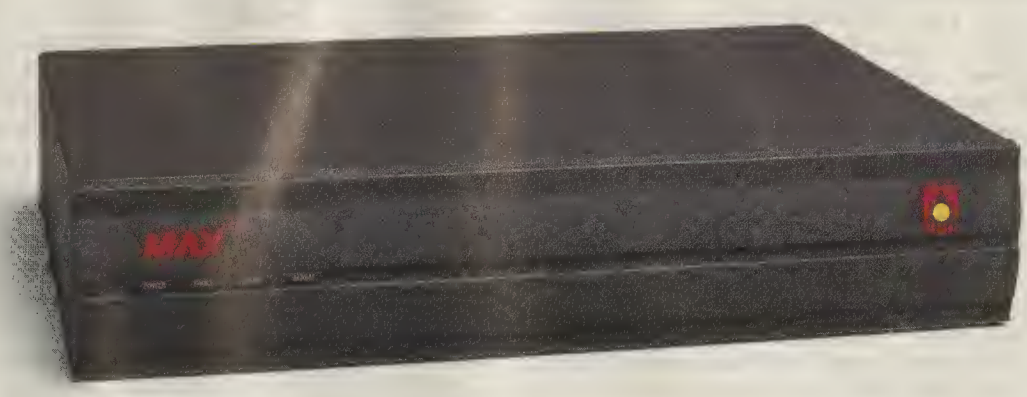
It doesn't get any cheaper than free, and Servers Alive by DBU Consulting (**www.cmconline.com/salive**) is a Visual Basic freeware program (the author requires registration, but doesn't charge for the program) for Windows95/NT that simultaneously monitors the status of up to 100 different hosts running HTTP, FTP, NNTP, POP3, SMTP or other servers running on any user-specified port number. In the event of a server failure, Servers Alive can sound an audible alarm, send an SMTP e-mail alert, execute an external command or publish an HTML page to a designated server. Best of all, it can be monitored remotely via Telnet or a web browser, since the program incorporates a mini-HTTP server. (Make sure you have the Visual Basic 5.0 Service Pack 2 runtime dlls installed, or this one won't run.)

Another great free network administration tool is the IP Subnet Calculator version 2.0 (**www.net3group.com/ipcalc.html-ssi**) for Windows 95/NT. Enter an address and a subnet mask and it will give you back the start and end addresses for the subnet. It supports CIDR supernetting, so you can simply enter the number of supernet bits you want to use and an IP address, and it will return the number of possible supernets and their address allocation range, as well as the supernet mask and the route address. Get this one.

If you're running Unix, you'll definitely want Van Jacobson's tcpdump (**ftp://ftp.ee.lbl.gov/tcpdump.tar.Z**). It's a packet capture and analysis tool

Thom Stark is President of **Stark Realities,** an Internet business consulting firm based in the San Francisco Bay Area. He also conducts seminars and tutorials about the Internet at trade shows and for business and user groups. He is the author of the serialized online science fiction novel, *A Season in Methven*, (**www.starkrealities.com/Methven**) and is also a semi-regular panelist on ISP-TV's "State of the Net" cybercasts. Mr. Stark's e-mail address is **thom@starkrealities.com** and he maintains a non-commercial web site which focuses on IP internetworking technologies and policy issues at **www.starkrealities.com.**

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for Ethernet that compares very favorably in power with commercial applications in the multi-thousand-dollar range. Van also wrote the original TraceRoute (**ftp://ftp.ee.lbl.gov/traceroute.tar.Z**) and happens to be one of the great, gray gurus of Internet net- work management.

Then there's Multi-Router Traffic Grapher (**http://eestaff.ethz.ch/~oetiker/web tools/mrtg/mrtg.html**) by Tobias Oetiker and Dave Rand. MRTG is a tool to monitor the traffic load across network links. It's based on a Perl 5 script that uses SNMP to read the router traffic counters and a C program that logs the data and creates graphs of the traffic on the network. MRTG then generates HTML pages which contain GIFs that provide snapshots of network traffic. With a little modification, it can be used to generate graphical reports from any SNMP MIB, so a little time invested in hacking the MRTG source will provide you with a general-purpose monitoring tool. It's licensed per GNU, so you're free to turn any such hack into a commercial tool—so long as you agree to make your source code available to anyone who wants it.

Vikas Aggarwal's Network Operation Center On-Line /NetConsole (**ftp://ftp.navya.com/pub/vikas/nocol.tar.Z**) is a network monitoring package that runs on Solaris 2.2, SunOS 4.1.1, Ultrix 4.2 and BSDI/386 platforms. It's made up of several standalone monitoring agents that poll various network and system parameters. The NOCOL/NetConsole agents all share a common display and post-processing interface for logging and notification. They permit you to define four different levels of severity for event notification, from "informational" to "critical" and the user at each monitoring station can individually decide which level merits display. The currently available agents monitor ICMP, RPC portmapper, Ethernet load, TCP ports, Unix host performance (including disks, memory, swap, load, nfs, and collisions), SNMP variables (RMON, Cisco router and terminal server), TCP data throughput, named, SNMP traps, terminal server modem lines (i.e.—busy lines), and BGP peer status, as well as OSI, IPX and AppleTalk. It's freeware, too.

STRICTLY COMMERCIAL

At the low end of the cost scale, there's the **$79** IP Sentry (**www.ipsentry.com**), a Windows 95/NT app that monitors network components and can be configured to page or e-mail you, as well as trigger audible and visual alerts when it senses a failure. It will run as a service under NT and can be configured to run an external command when triggered, to page multiple numbers or to escalate pagers, if the alarm condition isn't fixed within a user-specified time. In multihomed networks, it can be configured for component dependencies (so that, for instance, a crashed router won't trigger a server down message).

WhatsUp (**www.ipswitch.com/products/whatsup**) by IpSwitch Corporation lists for **$195**. It's a Windows 95/NT application that includes a graphical display of the components you've selected to monitor and their current status. WhatsUp works best with RMON-manageable components (hosts, servers, workstations, bridges, routers, hubs and so on), but it can also "see" whether non-manageable devices are alive. It includes versions of WhoIs, TraceRoute, Ping, Finger, and Lookup (IpSwitch's version of nslookup). You can configure it to monitor specific services, such as SMTP, POP3, FTP, HTTP and Telnet, and to notify you if they stop responding or hit user-definable maximum thresholds. Better yet, it can be configured not only to give visual and audible warning of outages, but to page or e-mail you when alarm conditions occur. At night and on weekends, it can be a reputation saver for smaller ISPs.

WhatsUp Gold at **$595** is WhatsUp's enterprise-ready brother. It includes all the features of the original version and adds such features as additional views (the original version only shows a map view) of the network, the ability to poll multiple maps simultaneously, and a set of object-oriented drawing tools to enable you to create custom network maps. It also gives you the option to designate up to three user-defined monitorable services (such as a web server configured for a non-standard port), user-defined voice notification, user defined hierarchical relationships (between subnets, for instance), and dependencies and the ability to view the display in any web browser (allowing you to monitor your network from home, for instance).

At the high end of the range is Network Associates' Cinco NetXRay and its sister product WebXRay (**www.cinco.com**). NetXRay is both a protocol analysis and network monitoring tool. It runs on Windows 95/NT and does real-time packet capture and decoding, monitors both current and historical network node utilization and packet and error rates for IP, Novell, AppleTalk and other network protocol environments. NetXRay can generate traffic to do load and performance testing and can play back captured packets either as they were recorded or in edited form. It does auto discovery of your network's nodes, allowing you to build a network topology map from the discovered data. NetXRay also does paging and e-mail alerts, as well as being able to run external commands whenever your network exceeds thresholds you define. It can display its data in both tabular and graphical format, including pie and bar charts, traffic maps, plots and matrixes, as well as being able to export it to Network Associates' Sniffer Analyzer trace file format or to CSV text so that you can import it into a spreadsheet or database for custom analysis. All this power comes at a price and the price isn't cheap. Anything other than basic Ethernet capture capability will cost you in the neighborhood of **$2,500** (there is no "list" price, *per se*, but Network Associates' resellers all charge about the same amount).

WebXRay is an IP-only version of NetXRay that leaves out the trace file format export capability, but substitutes for it the ability to report on user access lists, access frequency and aborted connection attempts. It also offers statistical monitoring of HTTP, FTP, POP3, SMTP, Telnet and any other services you define by IP port number. It, too, does auto discovery, features page, e-mail and other alarms, has very nice graphical display capabilities and costs an arm, a leg and your first-born child.

Lest we forget, there's also Network Associates' Sniffer. It does so many things that it takes a week of training just to be able to scratch the surface. It also costs as much as a new Volvo, so only the largest ISPs will be able to afford it.

And, of course, there are also the really high-end network monitoring platforms, such as Hewlett-Packard's OpenView, Sun's Solstice, IBM's Netview/AIX, DEC's Polycenter and Cabletron's Spectrum. If your operation runs on one of those platforms, I'm sure your friendly, neighborhood value added reseller has told you all about them . . . again and again and again.

TOOLS ON DEAD TREES

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ing reference works current is a heckuvva lot easier. It has two major disadvantages, though: when your network's down, you're out of luck, and you still can't take it to the bathroom with you. For both reasons, words on paper will be with us for a good long while to come. At a minimum, your bookshelf should include the following works:

How to Set Up and Maintain a Web Site, Second Edition by Lincoln Stein (copyright 1997 by Addison, Wesley Longman, **$39.75**, ISBN 0-201-63462-7). This is as close to an all-in-one reference as you'll find. It includes an exhaustive CD-ROM and covers all the major Unix, NT and Mac servers, content creation tools, HTML 3.2 and VRML, Java, JavaScript, Perl 5, CGI, and—very importantly—security, security and more security. It's great as a standalone, or as a companion to *Webmaster in a Nutshell, Deluxe Edition* (copyright 1997 by O'Reilly & Associates, **$69.95**, ISBN 1-56592-305-7,) including the full text of O'Reilly's *HTML: The Definitive Guide, Second Edition, JavaScript: The Definitive Guide, Second Edition, CGI Programming on the World Wide Web, Webmaster in a Nutshell* and *Programming Perl, Second Edition* (the famous "camel" book,) all on a browser-searchable CD-ROM (the search applet doesn't run on the Java virtual machine supported by any current Mac browsers, though).

If you're running Unix machines (and most of us are) or MetaInfo's sendmail for NT (**www.metainfo.com**) you're probably also going to want a copy of *Sendmail, 2nd Edition* by Bryan Costales & Eric Allman (copyright 1997, 1993 by O'Reilly & Associates, **$39.95**, ISBN 1-56592-222-0). Co-author Eric Allman is the creator of, and continues to maintain, sendmail. An update of the 1993 original, this book is both a tutorial and a comprehensive reference to version 8.8 and earlier of the standard Unix mail server and daemon. It covers building, installation, and configuring sendmail and various aspects of sendmail administration, including using the sendmail restricted shell (a topic also covered in "Practical Unix & Internet Security, 2nd Edition"). If you find it useful, you'll probably also want to get the classic:

TCP/IP Network Administration by Craig Hunt (copyright 1992 by O'Reilly & Associates, **$32.95**, ISBN 0-937175-82-X). This is a must-have volume for Unix network admins. It addresses the basics of IP administration, including basic configuration for network interfaces, routing, DNS, sendmail and other network applications. It starts with an overview of TCP/IP and ends with a whole lot of useful appendices (although some of the URLs listed are now outdated and/or unreachable). In between, it addresses the basics of IP administration, such as basic configuration for network interfaces, routing, DNS, sendmail and other network applications, and it includes a very useful section on troubleshooting.

Regardless of whether you run Unix or NT, you'll want a copy of Paul Albitz & Cricket Liu's *DNS and BIND, 2nd Edition* (copyright 1996, 1992 by O'Reilly & Associates, **$32.95**, ISBN 1-56592-236-0). This book describes the Domain Name System and walks you through setting up both Unix and NT versions of the Berkeley Internet Name Domain software that is the workhorse of most Internet name servers. It also explains how to delegate the ability to assign names to a child server and how to correctly set up mail forwarding. It also goes into debugging and troubleshooting problems in versions 4.8.3 and 4.9.4 of BIND. For code warriors, it also discusses both shell programming with nslookup and C programming with the Resolver library routines.

WHICH WAY DO WE GO?

Let's face it—we've just scratched the surface of the surface, so far. We haven't looked at development tools, web log analysis tools, help desk tools, or tools to help you deal with financing your operation. Nor have we dealt with tools to help you diagnose and analyze physical problems with cabling, modems or NICs. And we've studiously ignored the whole issue of security. But, those topics will all just have to wait for future columns, because it's time for me to go, now.

In the meantime, for a *lot* more information on network analysis, management, benchmarking and diagnostic tools, take a look at rfc 1470. It's a comprehensive listing of network operations center tool sets that briefly describes dozens of different freeware and commercial products for Unix, Macintosh and Wintel platforms.

And don't forget Mr. Natural's advice.◆

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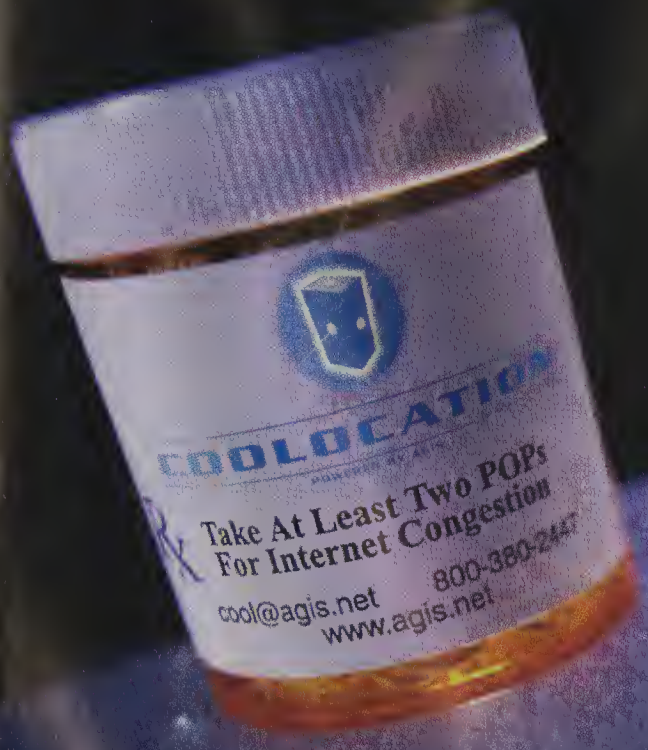
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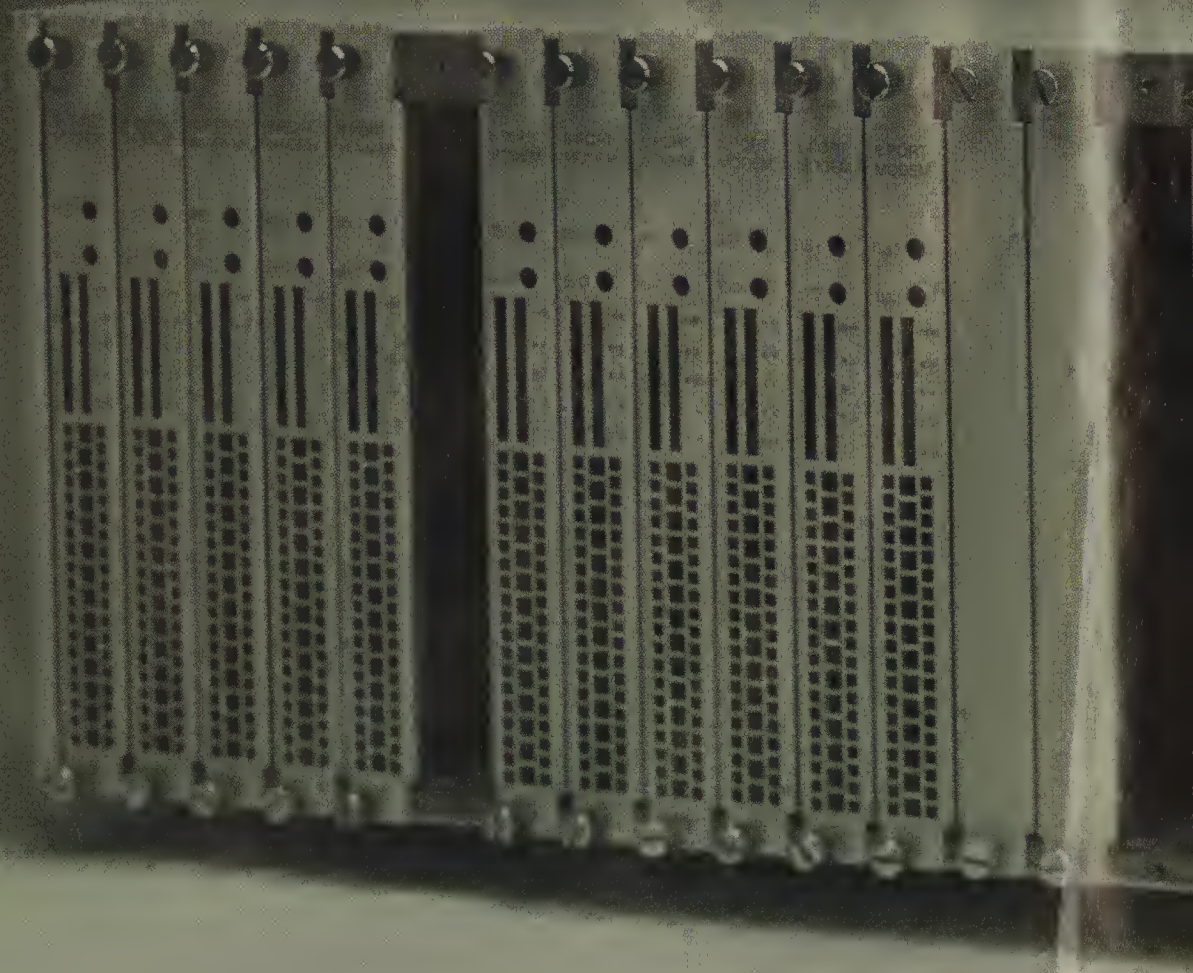
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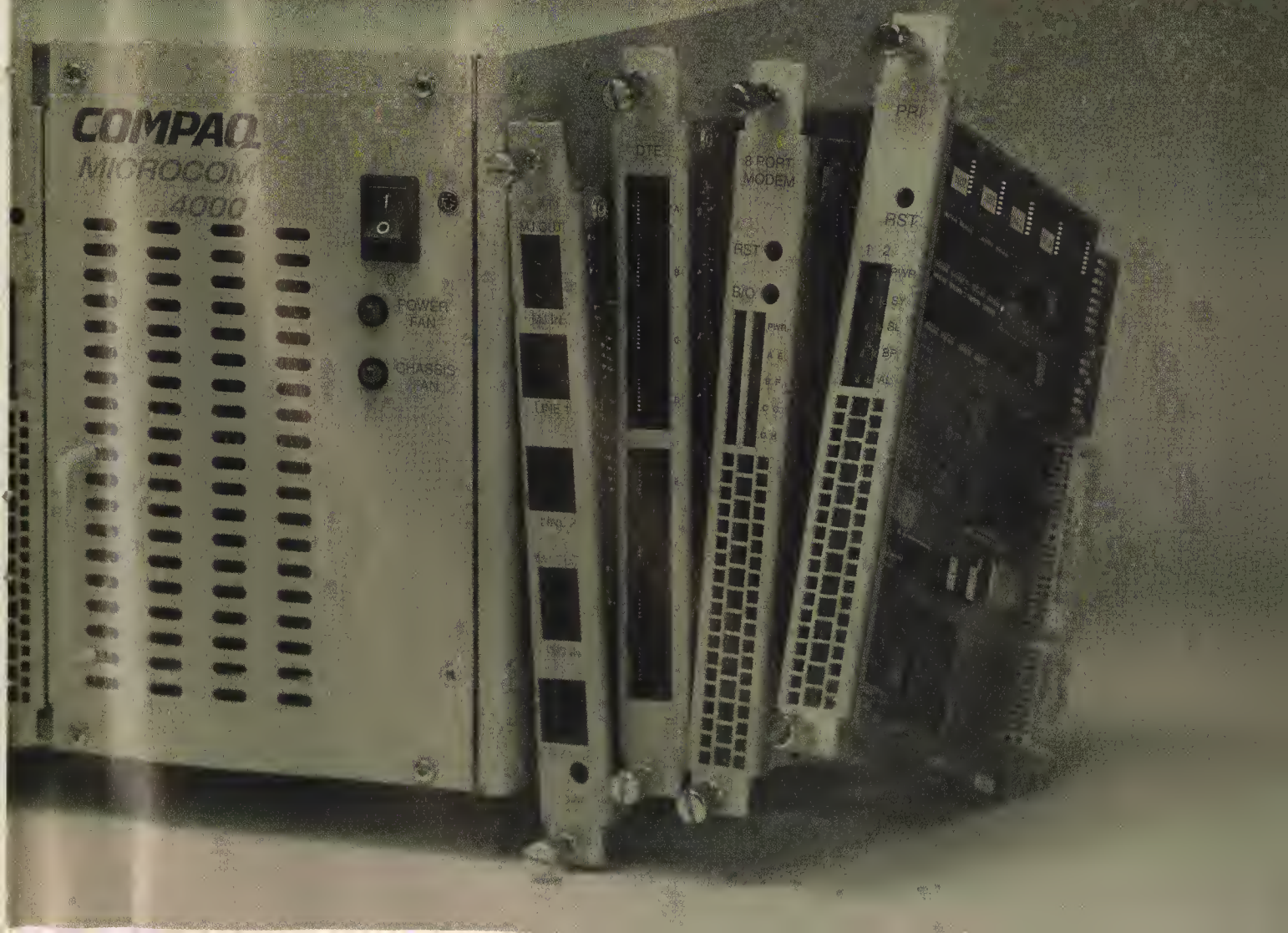
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LINUX REDUX by Alan Cox

LINUX SUPPORT

A lot of people always say, "With Linux the Internet is your support." For many people, this is adequate. I thought I'd take a look both at the support options available for Linux today, and the best places to find Linux Internet support and answers.

Most Linux vendors supply 30- day installation support or other basic support options. They also generally have mailing lists or newsgroups and web sites with searchable bug reports and technical hints. For the average user this is about what you'd get from any other commercial OS vendor, in some cases far superior.

There are plenty of business customers who would prefer a little more, and in the nature of free software there are plenty of people who will provide it. One of the things that many people confuse about "free" software is the idea that free means of price. The freedom of gnu public license free software is about the freedom to modify and to have source. The fact everyone has source and can modify it also means there is no vendor tie. If you don't like your support, you can go elsewhere to another person with the same degree of access. There is no enforced tie with the original OS vendor able to set standards of quality and price.

Yggdrasil (**www.yggdrasil.com**) is one Linux vendor that has been selling commercial Linux support for several years. The company offers $2.95 per minute technical support, or $100 per incident technical support options much akin to Microsoft. Yggdrasil may have been the first, but it is by no means the only option. Vendors like Caldera charge $60 an incident support for its OpenLinux product and $1,500 for a yearly support contract.

Not everyone offering support is a Linux vendor. The Linux consultants HowTo is maintained by Martin Michlmayr as part of the Linux documentation project (I'll talk about that in a minute). It provides a free listing of people offering support/consulting for Linux and related projects ranging from small one man outfits to large established organizations.

Of course, most people don't need this level of support, and in the "per incident case" a business can choose to use it as a last resort. The Internet may be a maze of twisty little web sites all alike, but in the midst of the maze are some truly wonderful resources. Some of my favorite Linux resources follow.

The core of the "free" Linux documentation resources are the HowTo documents and the Linux Documentation Project books. Greg Hankin maintains the web pages of the documentation project at **http://sunsite.unc.edu/LDP**. The project produces and maintains free documentation on the Linux OS and related software. These split into three main areas. First, a set of introduction material and a guide to finding re- sources (the meta-faq). Second, complete books (some of which have also been published) and third, the HowTo documents. Each HowTo explains in brief terms how to accomplish a given task. The HowTo files are a very good resource for quickly getting information. If you prefer to read paper documents, then many people have printed the Linux documentation and make it available more cheaply than a home inkjet print run is likely to be. RedHat, Linux Systems Labs, and Yggdrasil have all published the complete documentation.

The Linux books from the documentation project include Matt Welsh's *Linux Installation and Getting Started*, which is a fine, free introduction to the world of Linux. In a variant form, it has also been published by O'Reilly as *Running Linux*. Olaf Kirch's *The Linux Network Administrator's Guide* was also published by O'Reilly and, while now a little dated, is still a good introduction to the networking of Linux systems. The other books cover Linux programming, systems administration, and the kernel design itself. Not all of them are finished yet — but like the kernel itself, anyone can contribute.

Linux Gazette started off as a one man electronic magazine but rapidly grew a little too large for its originator to manage. It is now maintained by SSC (**www.ssc.com**) who also publish *Linux Journal*. It remains free as it is sponsored by several Linux vendors (or from a more cynical point of view — it's paid for by advertising). The *Linux Gazette* can be found at **http://sunsite.unc.edu/LDP/LDP/LG/lg_frontpage.html**. Most of the material is fairly basic, but useful.

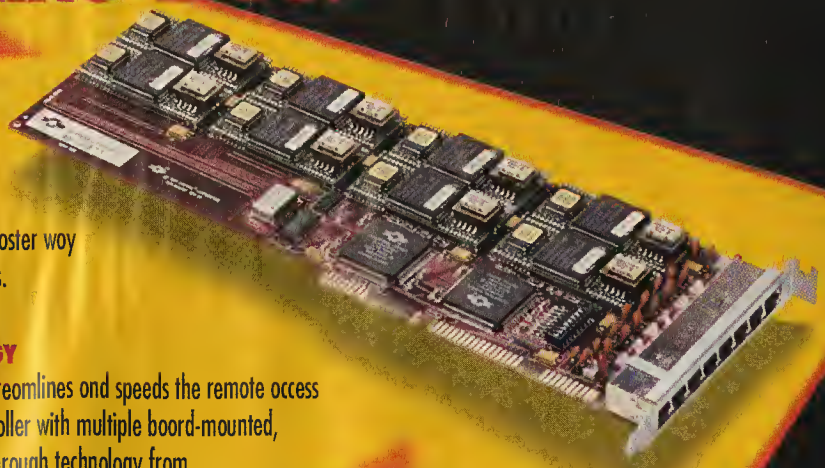
For those interested in kernel issues, LinuxHQ (**www.linuxhq.com**) maintains detailed logs of kernel changes and collects patches that have either been rejected from the kernel, are works in progress, or have not been merged yet. So if you need something unusual, chances are its already on LinuxHQ.

Mike McLagan has run **www.linux.org** for several years, originally in conjunction with SSC. Designed to be a general index of all things Linux, it has a fine collection of links to other sites as well as introductory information, details on Linux distributions, user groups, applications, hardware and so on.

Finally, since I'm as egotistical as anyone else, **www.uk.linux.org** maintains various basic intro-

Alan Cox is the technical director of CymruNet, a leading Internet service provider in Wales, United Kingdom. Cox is also a member of the Linux International Technical Board and the CERT Vendor contact for Linux. He maintains the ***http://www.uk.linux.org*** *web page and leads the Linux Networking Project, the project to port UNIX to shared memory multiprocessor architectures, and a project to port Linux to 8086 embedded controller systems. Send e-mail to* ***alan@cymru.net***

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ductions and also an index of a some of the commercial software packages for Linux. From there, you will also find links to several other software indexes including **http://sal.kachinatech.com**, which is a truly excellent index of scientific software on Linux maintained by Herng-jeng Jou.

The Web isn't the only Internet resource for finding Linux problems and answers. An array of newsgroups discuss Linux and applications used on Linux. Usenet itself isn't always the best place to look directly for answers. Being the five hundredth person to ask the same question does have the strange effect of annoying the regular readers of a group — so check the frequently asked questions first. You might also like to check DejaNews (**www.dejanews.com**) before posting. Search Usenet traffic for the past few years for your question and if you don't find it there, at least you will know it hasn't been asked before. The technically curious might like to know that DejaNews itself runs on Linux.

If you prefer paper, then there are several excellent books on different aspects of Linux and a variety of highly applicable general Unix books. These range from introductory books to detailed "how it works" kernel internals books.

One book that appeared in the post a couple of days ago was *Linux Users Resource* by James Mohr. It's not only a large volume (some 800 pages) but also stuffed full of useful information. The book keeps a chatty and friendly style while going through the basics of Linux, PC hardware, X Windows, and computer networking. Later chapters go on to deal specifically with setting up Linux for a commercial web site and doing business on the Internet. These last few chapters contain some true gems as the book branches out to look at the people side of building a successful web site and Internet business. This really is perhaps the greatest strength of the book — its inclusiveness. It pulls in strands of other topics to give more than just a grounding in Linux.



CERTIFYING LINUX CONSULTANTS

With the movement towards large numbers of commercial support providers, certain vendors have been making plans for "certified" consultants. In effect, purchasers of commercial Linux support are able to know they are getting someone with a clue about what to do.

The issue hasn't exactly gone smoothly. Many smaller organizations don't see why they should have to pay one or more Linux vendors to be XYZ Linux certified or risk losing customers to less able, but richer operations. At the same time someone has to pay the cost of such testing and many customers — especially corporate ones — want to know they are buying the services of a support engineer, not a con artist.

It is not a new argument in the computing field, let alone, others and time will see how it resolves.

LINUXCONF

The Linuxconf team (**http://solucor.solucorp.qc./linuxconf**) has, for a while, been working on a centralized Linux administration system. This allows the management of Linux systems over the Web, via graphical and command line interfaces, and now, a Java interface.

The system is modular and can be extended to cover more and more systems and applications as needed. An application can also add its own configuration module to the installed configuration system, so that packages you add set up their own tools.

The user interface to Linuxconf is also modular. Using a configuration dialog messaging protocol, Linuxconf allows the user interfaces to live anywhere on the Internet and to be written with any tool kit or API. If they so desired, someone could write tools for running Linuxconf from anything, be it a PalmPilot or a supercomputer.

Caldera has also announced a web/Java-based Linux administration project (COAS), which at the time of writing doesn't have any released code. When there is something worth reviewing, I'll get back to that one.

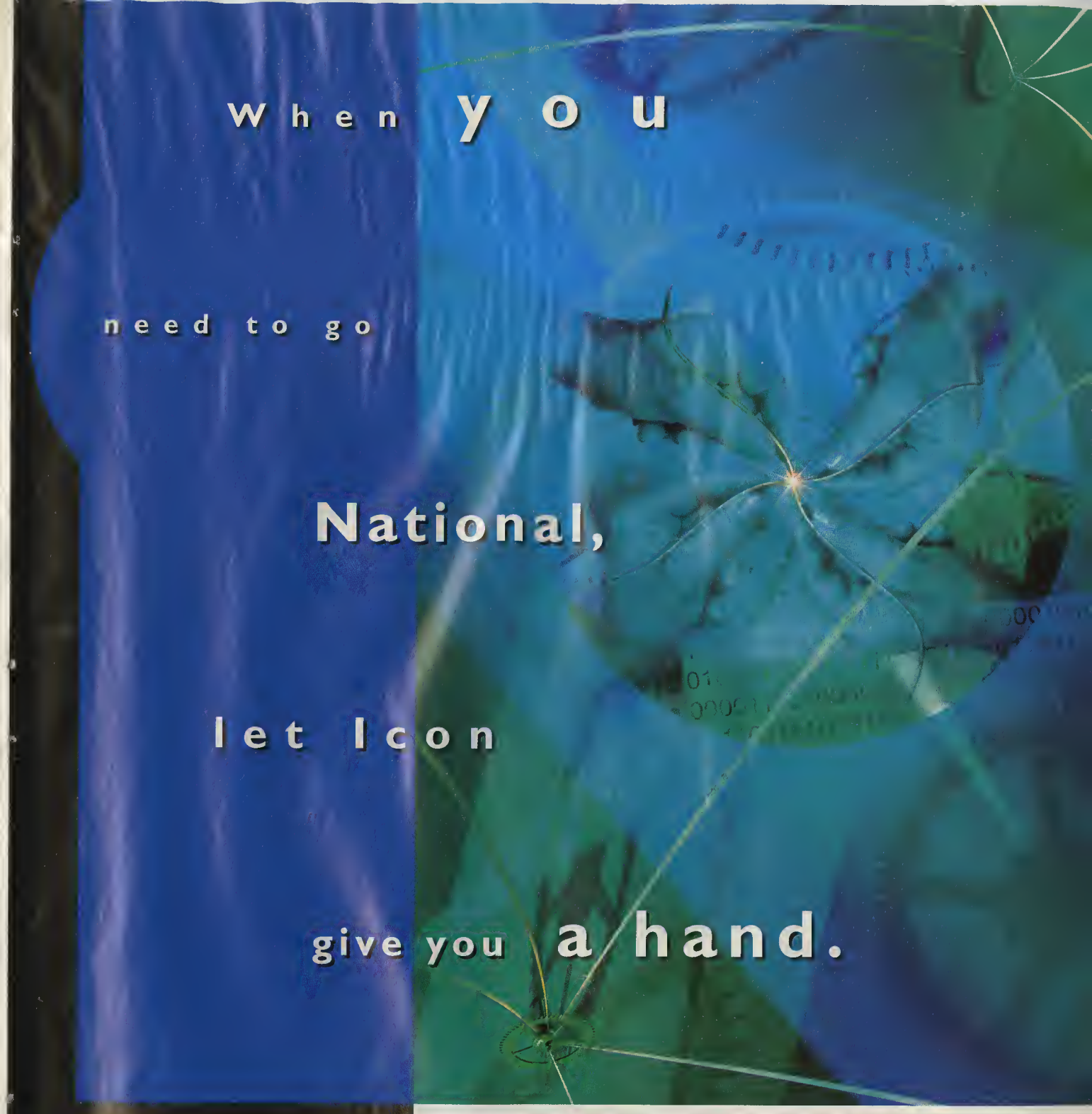
LINUX FOR THE BLIND

At first it may seem that the Linux OS is not necessarily the most obvious choice for the blind user but it does have several obvious advantages over system-line windows, including a command line interface. That, along with source code, makes the system easier to tailor to the needs of blind users.

The BLINUX Documentation and Development Project has been working on Linux for the blind for a while now. Its web site (**http://leb.net/blinux**) contains a wide collection of resources for blind or partially sighted Linux users. There is also a fairly active mailing list which is the origin of the rest of the project.

It turns out there are some very useful applications available for blind users of Linux. In addition to the Lynx web browser, which has long had features aimed at the blind user, there are several speaking software packages. Emacspeak provides speech output from within the Emacs editor and built-in tools such as gnus and Emacs mail.

Several Braille terminal drivers can be found on the site along with screen reading tools and speech synthesis drivers. On top of this, a wide variety of other applications have been modified for speech support — things like a speaking xmailbox.◆



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WIRELESS Data Developments

by Steve Stroh

E-MAIL ACCESS WHILE PURSUING WANDERLUST

This column was written the week prior to Comdex Fall '97, and there will no doubt be a number of announcements about wireless there. It will be interesting to try to virtually follow the Comdex experience this year. Wireless data is a hot topic, and I expect numerous announcements related to wireless data. One announcement of note is from Metricom (**www.metricom.com**) that it has released a new model of its wireless modem called the Wireless SX for its Ricochet (**www.ricochet.net**) wireless Internet access system. The SX's main feature is a form factor that works better with Windows CE palmtops than the Ricochet Original and SE wireless modems.



You may have noticed that wireless data is not very well represented in the newsgroups. The only one of general interest that I'm aware of is **news:comp.std.wireless**. The primary place where discussions of amateur radio wireless data takes place is **news:rec.radio.amateur.digital.misc**. Much discussion about various amateur radio-related wireless data topics takes place on mailing lists, many of them sponsored by TAPR (**www.tapr.org/tapr/html/sigs.html**).

One question that comes up with great regularity in the newsgroups and mailing lists is that of maintaining e-mail contact with someone going on long trips, such as missionaries, sailboats on 'round the world trips, and loved ones taking jobs in lesser developed countries. These people are used to being in touch via e-mail and they would like to continue that practice. There ought to be some way that to do it . . . and oh yes, it would be really great if it were able to be done for a reasonable price. A few years from now, this question will be almost laughably moot — there will be several low earth orbit satellite systems in operation that will provide low-bandwidth data and voice access for mobile users anywhere on the planet for reasonable prices. Motorola's (**www.motorola.com**) Iridium System (**www.iridium.com**) has successfully launched a number of the satellites that will be required for continuous global coverage. Iridium expects to begin service in 1998.

If a person is going to an area that has any significant telephone system infrastructure, dial-up access may still be an option. I've read very good things about CompuServe's (**www.compuserve.com**) and IBM's (**www.ibm.net**) overseas network connections—mostly that they work reliably, are widespread, and are reasonably priced (but not cheap).

If cost isn't an issue, there are a number of portable terminals that connect to the Inmarsat-A (**www.inmarsat.org**) mobile satellite system. Inmarsat is a system of geostationary satellites and ground stations that provide satellite communication services to planes and ships on the oceans and waterways of the world. The Inmarsat-A system has advanced through additional satellites, better coverage per satellite, and more power available per satellite. It now provides good quality satellite communications service to most areas of the world.



In a previous life as a marine doodlebugger (one who explores for oil), I spent many hours learning about satellite technology from the first generation of Scientific Atlanta Inmarsat (Marisat, owned by Comsat in those days) terminals that were installed on the ships I lived and worked on. I exchanged more than a few test telex messages with shore station

Steve Stroh learned wireless TCP/IP networking as an amateur radio operator (callsign N8GNJ). He's one of the founding members of the *Puget Sound Amateur Radio TCP/IP Group* and is secretary for *Tucson Amateur Packet Radio (TAPR)*, a national not-for-profit amateur radio research and development corporation that specializes in wireless digital communications.

Professionally, he's a NetWare and Windows NT administrator for a large company. He's done battle with UNIX a few too many times and mostly lost, so now he's learning Linux and BSDi in preparation for his next UNIX challenge. Steve lives in Woodinville, Washington (in the shadow of Redmond) with wife Tina and daughter Merideth. He can be reached at **steve@stroh pub.com**.

operators while working in such remote places as Alaska's Bering Sea. In those days, it was just simply remarkable that you could literally be anywhere in the world and still be able to stay in touch by telephone and Telex. I remember it being quite a thrill in looking at a directory of ships equipped with Marisat terminals, and seeing Jacques-Yves Cousteau's ship Calypso listed. All it would have taken to talk to them was dialing a few numbers, and US$10 per minute (speaking French probably would have also helped).

Inmarsat-A also isn't much of an option for boats with limited electrical power or space for a large radome that houses the dish antenna that must remain locked on the satellite (despite the boat pitching up and down, side to side, and constantly changing position) in order to remain in continuous communication.

Inmarsat offers a less expensive data-only service called Inmarsat-D that uses a small, fixed omnidirectional antenna. When connected to a global positioning system (GPS) receiver, Inmarsat-D makes it possible, for even small vessels, to send out automatic position reports so that in the event of an emergency, the last known position of the vessel can be determined with much greater accuracy, improving greatly the chances of rescue. Inmarsat-D looks quite promising for use with e-mail.

If you're sailing (or powerboating) and have access to a marine HF (high frequency, sometimes referred to as the marine shortwave band) radio, two companies, Globe Wireless (**www.globe wireless.com**) and Pinoak Digital (**www.pinoak.com**) offer systems that connect to a marine HF radio and a PC or laptop. The ship stations periodically, automatically connect to the shore stations to poll for new e-mail. This might sound clunky, but it really isn't. It must be pretty remarkable to be in the middle of the ocean and go below and see your laptop flashing that you have new mail.

Orbital Sciences Corporation's Orbcomm (**www.orbcomm.com**) system looks quite promising for reasonably priced short messaging use. One of the Orbcomm's suggested uses is "recreational," which I've never seen mentioned by any other communications system provider (other than "high-end recreational" — yachts and such). Orbcomm will use a low earth orbit constellation of 28 satellites (only a few are currently in service, so access is intermittent) and small, hand-held terminals.

For the do-it-yourselfer, hacker, and very price sensitive user, amateur radio may be an answer. There are amateur radio equivalents to both the HF systems and the low earth orbit systems. However, there are some very significant caveats to the use of amateur radio:

- Amateur radio cannot be used for "commercial" communications (and the definition of "commercial" varies widely among different countries. In the U.S. and Canada, the definition has loosened considerably. In other countries it is quite strict.)
- There are a number of countries that do not permit amateur radio operations at all, or require very expensive permits for amateur radio operation.
- Even if amateur radio is permitted, the country may not have a "third-party agreement" with the U.S., or a country with which you may wish to communicate.
- You may have to arrange your own "gateway" system to transport e-mail from amateur radio to the Internet, and vice versa.
- Plan on being your own systems integrator and becoming an expert at amateur radio pricing. There isn't much technical support available, and the vendors aren't necessarily experts at other manufacturer's equipment.

A good book on amateur radio HF data communications is *Your HF Digital Companion*, by Steve Ford, WB8IMY, available from the American Radio Relay League (ARRL- **www.arrl.org /catalog**).

Manufacturers of amateur radio HF data communications equipment include:

- PacComm Packet Radio Systems — **www.paccomm.com** (browse for information on PacTOR under Amateur Products)
- Kantronics — **www.kantronics.com**
- Timewave Technology Inc. — **www.timewave.com** (acquired the Advanced Electronics Applications, Inc. [AEA] line of wireless data communications products)

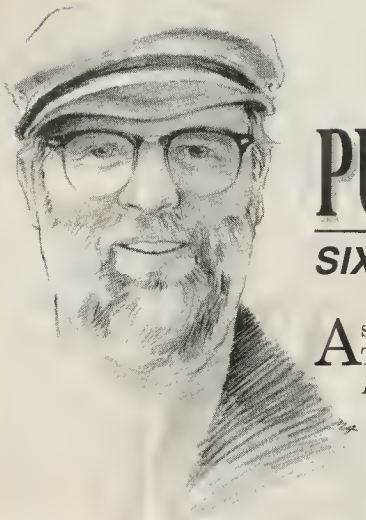
It's a surprise to most people to hear that amateur radio operators are responsible for a series of increasingly advanced satellites that have been in orbit since nearly the beginning of the Space Age. Such a satellite is called an OSCAR — orbiting satellite carrying amateur radio. The singe best reference on the Web to amateur radio satellites is the AMSAT-NA (Amateur Satellite Corporation — North America) web site at **www.amsat.org**. There are numerous links there that will give you an overall picture of amateur satellites and technology and what can be achieved with it.

Amateur radio satellite technology is poised to make a huge leap forward when the next generation, or "Phase III" satellite finally achieves orbit, including near continuous coverage and high-bandwidth communications via amateur microwave frequencies. It was scheduled to be launched in the Fall of 1997, but its launch was postponed due to last minute structural changes required by the launch vendor.

The ARRL Satellite Anthology, available from the ARRL (see above URL), is a good place to begin understanding amateur satellite technologies.

Several years ago, a total of six very small satellites (12 inch cubes) were launched. They achieved their ride into space by taking the place of dead weight — ballast through some bleeding edge (for space applications) technology. These Microsats were a pioneering effort at "flying mailbox store and forward" technology. Basically, the Microsats act as flying Bulletin Board Systems — messages are uploaded when the satellite is over one point on the globe, and downloaded when it is over another part of the globe. Such a system is very effective, both from the resources required to access it (everything other than antennas needed to access it, including battery, solar panel, radios, and laptop computer) can fit into a large briefcase. The amateur Microsats are in daily use by a large, international group of users, including many who have used them to exchange e-mail with loved ones when e-mail would not have otherwise been possible.

Lastly, I've mentioned Mission Aviation Fellowship (MAF- **www.maf.org**) in a previous column. MAF provides e-mail communications from some really remote areas with a combination of satellite, HF wireless, VHF/UHF wireless, and, when appropriate, telephone and modem. I have tremendous respect for its mission and its people. Most of us take e-mail communications for granted, but in areas where MAF operates, e-mail is literally a lifeline.◆



PUTTING THE NET TO WORK

by Durant Imboden

SIX MYTHS ABOUT AD-SUPPORTED SITES

As a forum manager on MSN, a guide at The Mining Company, and a writer for *Boardwatch*, I spend a lot of time thinking about online business models and trends. I spend even more time monitoring what *other* people in the industry think, since I figure that some of them—the $1,000-a-day consultants, anyway—probably have better insights than I do. Still, I'm writing for *Boardwatch* and they're not, so I get to play expert this month by debunking—or at least questioning—several commonly held assumptions about online business models (with a special emphasis on advertising-supported sites).

Durant Imboden is a freelance writer whose credentials include published novels and nonfiction, fiction editing and staff writing for ***Playboy***, travel writing for corporate clients, and representing authors at a New York literary agency. He currently manages the Writing Forum on The Microsoft Network and co-authors the "Flame Wars" column on Delphi, where he is an editorial consultant. Durant maintains a web site for writers at **http://www.writing.org**. MailTo: **imboden@writing.org**

MYTH #1: YOU CAN'T SUCCEED WITHOUT REPEAT BUSINESS

Repeat business is obviously desirable. If you need a million page views a day to stay in business, it's easier to reach that goal when a fair-sized chunk of your traffic is from repeat visitors.

But some sites just don't lend themselves to repeat visitors—at least, not the kind of online regulars who show up in MSN or AOL chat rooms for two hours a night. Does this mean such sites are destined to fail? Not necessarily, if their potential audience size is large enough *and* if they have enough visibility or distribution to bring in a steady supply of fresh customers.

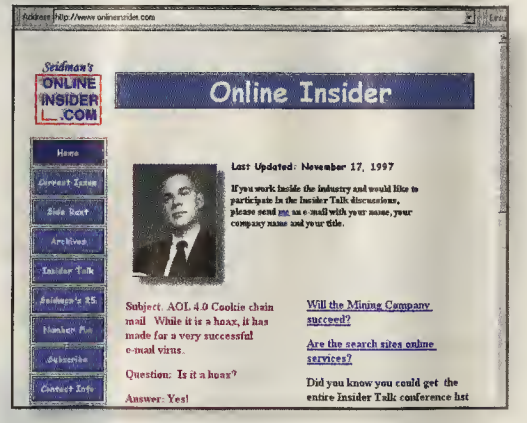
Travel sites are a good example. Millions of tourists fly from North America to Europe each year. Many are first-time visitors; few tour Europe on a regular basis, and even fewer go to the same city or resort on every European trip. In short, these travelers aren't likely to visit a web site devoted to Paris, Rome, or Amsterdam 200 times a year.

But when these travelers are planning their vacations, they may hit a handful of travel sites again and again: first to gather general tourist information; later to find out about hotels, restaurants, local transportation, and specific sights; perhaps a few times more to check other users' recommendations in bulletin boards. These travelers may not be regular visitors, but they can generate a great deal of traffic when they are active.

Just as important, they represent a highly qualified audience for advertisers. Swissair isn't likely to care if a user of Switzerland for Visitors (**http://goswitzerland.miningco.com**) or CityNets' Switzerland page (**http://city.net/countries/switzerland**) is a regular visitor. What counts is that the user has gone to the trouble of seeking out a web site devoted to Switzerland. That should make the user more valuable to Swissair than, say, a reader of *Travel/Holiday* or the *Chicago Tribune* travel section who might be planning anything from an Alaskan cruise to a week at Disney World. And this extra value should mean a premium ad CPM for the Switzerland web site—at least, if the site is generating enough traffic to make Swissair's advertising worthwhile.

MYTH #2: INTERACTIVITY IS EVERYTHING

Not long ago, I posted a message about content on the "Insider Talk" message board at Robert Seidman's **www.onlineinsider.com**. By "content," I meant professionally gathered and written information. Yet many of those who responded obviously regarded user-created content in chat rooms and bulletin boards as being even more valuable because of its "interactivity."



Bulletin boards and intelligently moderated chats are worthwhile, and there's no doubt that users enjoy them. But does every web site need interactivity beyond a set of hypertext links and a few browser buttons? If John Doe wants to check the Dow-Jones average, will he be miffed if Messrs. Dow and Jones don't offer "community"? If his wife Janelle is thinking of changing jobs, will she demand that her city's online employment listings include a chat room and message board?

It's a mistake to think that "community" is necessary at every advertising-supported web site, or that chats and bulletin boards are a panacea for sites that aren't getting enough traffic. Interactivity has its place, but there are times when "interactive" simply means providing the navigation and search tools to help users find the information they need.

THERE ARE ENOUGH COMPLEXITIES IN LIFE. CONNECTING TO THE INTERNET SHOULDN'T BE ONE OF THEM.

Creating an Internet presence can be a frustrating experience, even for the expert. Beyond the web server there are routers to make the connections, FTP to move the files, and e-mail servers to give your mail a home. And don't forget the Domain Name Server that's required so the world can know your name. Even after you gather all the pieces, you still have to integrate them. And the costs, in time and money, can be staggering. But now there is an easier way.

THE INTERNET PRESENCE IN A BOX

The Internet Protocol Adapter (IPAD) is the only product that fully integrates a router, terminal server, and core Internet services (e-mail, DNS, unlimited WWW and FTP servers) into a single device. With all the necessary internal and external connections, Domain Name Service, and other required functions, the IPAD includes everything you need to easily establish a complete Internet presence. In fact, it's so complete, you can add remote access by simply plugging in modems and dialing in with any Internet compatible computer.

BUILT WITH PERFORMANCE AND DURABILITY IN MIND

The IPAD's capability is housed in a rack-mount chassis of battle-ready construction. Its custom software, optimized for the Pentium processor, yields an unprecedented combination of performance and durability that you can never get from a general purpose operating system. The IPAD may be easy to use, but it's no toy.

	IPAD	Windows NT
Computer Hardware for Server CPU	Comporable performonce	166 Mhz Pentium, 2 GIG SCSI Oisk, Ethernet, Coching Controller 96 MB RAM,
	$7465	$3500
Router Softwore	Included	$1800
Configuration Time	Pre-configured	1-3 hrs
Configuration Cost	–	$70 Avg
Sub Total	–	$1870
System Softwore O/S	Included	$895
Configuration Time	Pre-configured	5-30 hrs
Configuration Cost	–	$615 Avg
Sub Total	–	$1510
Web Server	Included	Included
Configuration Time	Pre-configured	3-25 hrs
Configuration Cost	–	$490 Avg
Sub Total	–	$490
FTP Server	Included	Included
Configuration Time	Pre-configured	1-2 hrs
Configuration Cost	–	$50 Avg
Sub Total	–	$50
ONS Server	Included	$495
Configuration Time	Pre-configured	5-80 hrs
Configuration Cost	–	$1600 Avg
Sub Total	–	$2095
E-Mail Server	Included	$580
Configuration Time	Pre-configured	10-100 hrs
Configuration Cost	–	$1900 Avg
Sub Total	–	$2480
Support Costs Per Year	$795 Includes Hardwore ond Softwore Protection	$2100 No Hardwore or Software Protection
Number of Vendors	1	5
Total Cost	$8260	$13,600
Time from receipt to fully operational site	2 Days	120 Days

PLUG 'N PLAY AND WALK AWAY

Many products claim to be easy to use, but the proof is in the time you spend getting it up and running. With other products you have to *learn everything* before you can *do anything*, and with the Internet there's a lot to learn. Only the IPAD allows you to get started immediately, and learn as you go. Information Week said of the IPAD "*from box to working system in two hours even with mistakes.*"

And this ease of use doesn't stop there. With an IPAD even those without formal Internet training can confidently grow and maintain their own network.

GO WITH A WINNER!

InfoWorld Magazine said *"The IPAD represents an elegant solution when you need to easily build an Internet or intranet presence. Considering the time it saves you, the price represents a good value."* In 1995 John C. Dvorak gave the IPAD his PC Telecommunications Excellence Award because he recognized the IPAD advantage.

DON'T WASTE ANY MORE OF YOUR TIME!

You want your Internet Presence up and running quickly without a long learning curve or sacrificing flexibility and power. Now you can have it! The IPAD is the *only* TCP/IP appliance that lets you *start immediately* and grow your site smoothly without forcing you to become an Internet expert(or hire one).

TAKE CONTROL!

Call 303-699-6565 today and join those who have learned the secret to controlling their network rather than having their network control them.



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MYTH #3: CORPORATE SITES NEED COMMUNITY

This assumption is based on two factors: the lemming mentality and corporate ego.

By "the lemming mentality," I mean the train of thought that goes: "Other corporate sites have chats and bulletin boards, so our site needs them, too." Trouble is, many of those other corporate sites haven't made a penny from community—or from the interactive games, virtual tours, and other goodies they've developed at staggering expense.

The second factor, corporate ego, is the mindset that says: "People really care about life insurance, and they'll spend their evenings here at LifeCo, Inc. if we provide an environment where they can discuss Whole Life and 10-Year-Renewable Term with their online friends." Unfortunately for the corporate egotist, most online users don't want to hang out with Prudential, Budweiser, or Procter & Gamble when they can find more congenial company on AOL.

There's another downside to corporate community: the need to prevent spam, obscenities, rants by dissatisfied customers, and other Usenet- and IRC-style idiocies in bulletin boards and chats. To put it another way, does the aforementioned insurance company really want to deal with messages that bear headers like "HOT NUDE GIRLS!!!" or "LifeCo Sux!!"? And Procter & Gamble want to be on the receiving end of a "P&G SUPPRESSES FREE SPEECH!" campaign when the sysop deletes a message about sexual applications for Crisco?



MYTH #4: BUILD IT, AND ADVERTISERS WILL COME

To see this philosophy in action, visit GeoCities at `www.geocities.com`. GeoCities reportedly has 70.3 million visits per month, but it also has more than a million individual web sites. It doesn't take a mathematician to translate that number into an average of just over two daily visitors per site. Even if you go by page views (464 million a month), you're talking about 15 advertising impressions per site each day—and who knows how many of those impressions are coming from the million-plus web masters whose pages are hosted by GeoCities?

MYTH #5: BANNER ADS ARE OBSOLETE

Banner ads got a bum rap in the early days of web advertising, when their small size and static quality made them little more than miniature billboards. Art directors at ad agencies hated them, and media buyers treated them with the same contempt that they showed (and still show) toward Yellow Pages ads.

Modest clickthrough rates didn't help. Never mind that a clickthrough rate of 3 percent was considerably better than the response rate for a magazine or TV ad. The Internet had been hyped as a powerful new medium, and advertisers were disappointed when their ads didn't get unheard-of results.

Today, banner ads are starting to show their potential not only as a direct-response tool, but also as a branding vehicle. Imaginative graphics and clever (rather than gratuitous) animation show that banner ads can have the impact of tiny TV spots. Thanks to sophisticated advertising-management tools that can target ads to a user's interests (as demonstrated through a Yahoo! search on "stocks" or "dieting," for example), the future of banner ads seems considerably brighter than it did just a year ago.

MYTH #6: ANYONE KNOWS ANYTHING

William Goldman, the novelist and screenwriter, once said of Hollywood that "Nobody knows anything." The same rule could be applied to online businesses.

Three years ago, who could have predicted that the major online services would offer flat monthly rates, or that *Boardwatch* would cater more to Internet service providers than to BBS sysops? For that matter, how many early Lynx or Mosaic users would have guessed that, in 1997, search engines and a browser manufacturer's site would be the hottest venues on the Web?

It's easy to make predictions or to debunk the predictions of others. So don't put too much faith in any columnist's pontificating—including mine.◆

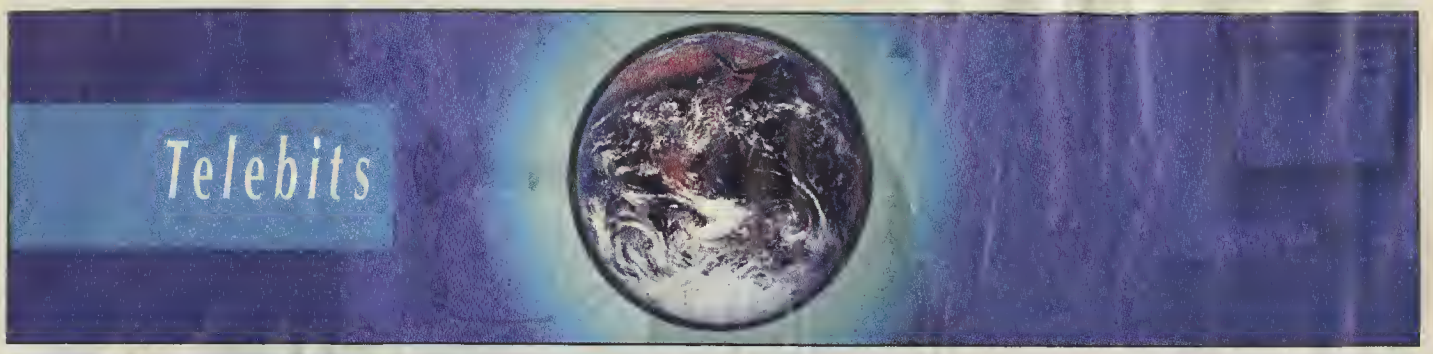


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ACC OFFERS LEASE PROGRAM FOR TIGRIS REMOTE ACCESS SERVER

ACC (**www.acc.com**), makers of the Tigris remote access server, have announced a lease program focused toward Internet service providers. ISPs would be able to lease the Tigris for as little as $8 per port per month. The three port model, which supports up to 96 ports, is available for $187 per port, or $17,952.

The Tigris is available as a 3-, 7- or 11-slot chassis. ACC I/O cards can be swapped between models of all sizes, giving the ISP low-cost expansion. Controller cards from the 3- and 7-slot chassis can be used interchangeably, while the 11-slot unit requires a more powerful controller.

VITALSIGNS LAUNCHES VITALHELP AND VITALANALYSIS SERVER COMPANIONS

VitalSigns has introduced VitalHelp and VitalAnalysis, which are server packages that work in conjunction with Net.Medic. When Net.Medic users log in, Net.Medic looks for VitalHelp or VitalAnalysis on the autonomous network. If either one, or both, is found, then the client uploads the database to the server or servers.

VitalAnalysis takes the aggregate data from all users and produces time-period reports based on any variable. VitalHelp is a real-time analysis of each current connection. It logs all the present problems and correlates them to help isolate the issue. If, for example, 24 users are experiencing abnormally slow connect times, VitalHelp would realize that all 24 are connected to one modem card on a remote access server. This would all happen immediately, allowing ISPs to quickly fix the problem. This scenario can be extended to included problems isolated in routers, hubs, servers and POPs.

VitalHelp can even be used for online technical support. An ISP can analyze the user's modem, TCP/IP software, and memory, to name a few. It even determines if the telephone circuit is "dirty" with cross talk.

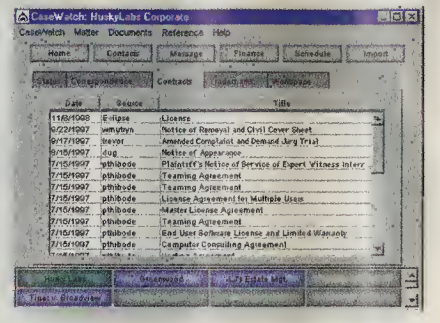
With earlier versions of Net.Medic, customers were concerned that their every moves would be monitored. Although the client can log everything, monitoring can be turned off or limited. This way, customers can maintain their privacy while still remaining part of their ISP's analysis. The end-users retain complete control over the information they wish to share.

VitalSigns Software is located in Santa Clara, California, and can be reached on the Internet at **www.vitalsigns.com.**

HUSKY LABS UNVEILS CHAKRA, A WEB-BASED SECURE GROUPWARE APPLICATION

Husky Labs, of Shepherdstown, West Virginia, has introduced perhaps the first useful implementations of Java. Chakra is a distributed system that resembles groupware, but is a launching pad for a plethora of network-based applications. The company has used the application with engineering firms for project coordination, with manufacturing and distribution industries where information needs to be dispersed to customers and business partners, and in education for course catalogs and online classes.



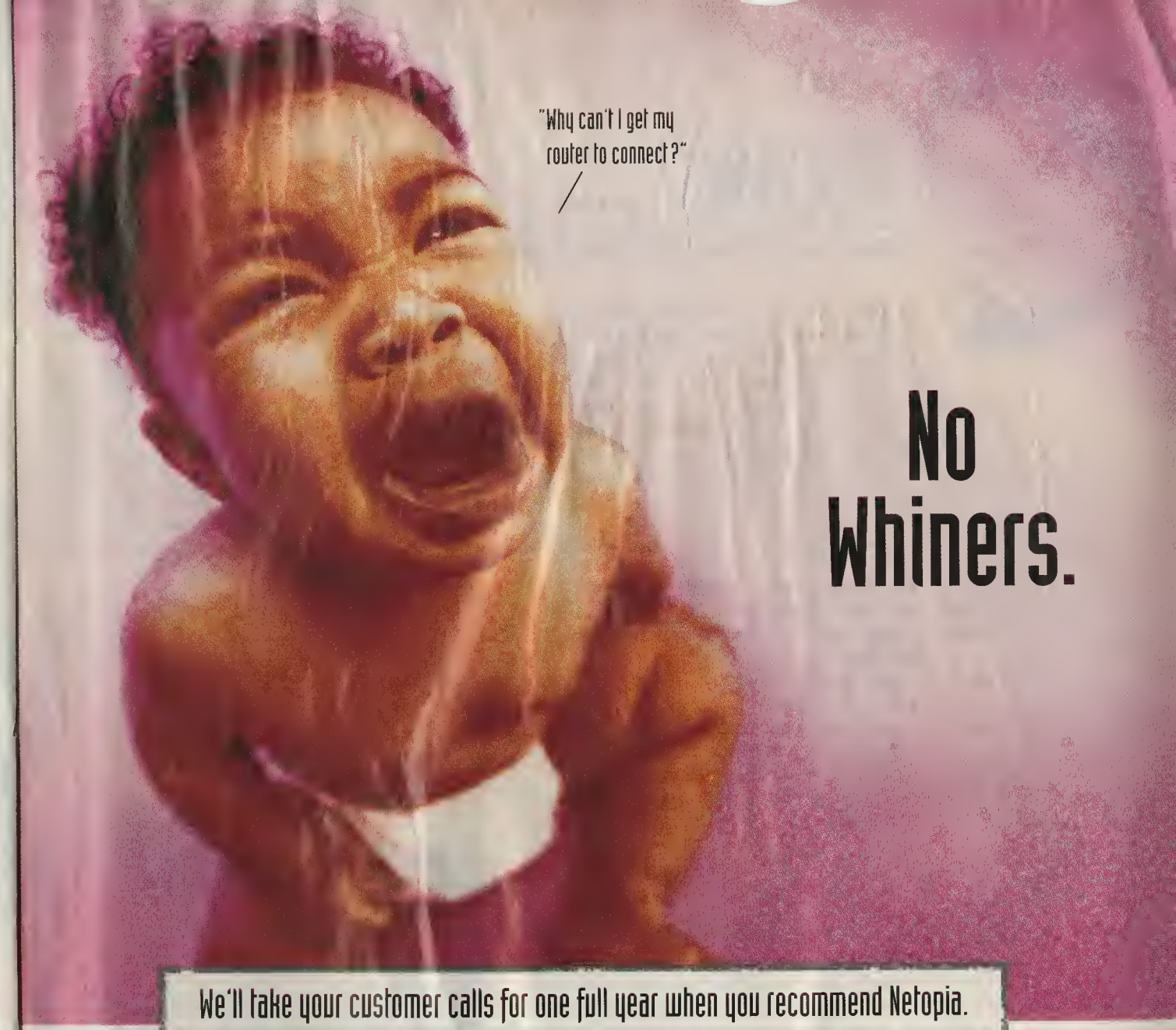


Chakra also incorporates Shakti, Husky Labs' protocol that allows its components to communicate with each other and with CORBA modules. Users can create their own security and grant different levels of access to other users on the network. A Chakra authentication agent, can be on any computer on the Internet or a LAN, and it authenticates each user against each machine. Currently, Husky Labs is using a University of Michigan LDAP server for Internet-based authentication, which opens a DES 56-bit encryption key so that all transactions are secure and encrypted. Users can even authenticated their Lotus Notes IDs across the Internet.

Husky Labs President David Levine, who previously designed a virtual web-based tour of the Baltimore Aquarium, said that the entire program was written with Java, although that wasn't originally the plan. The company planned to use Java as much as possible, but expected to write some of the code with C++. But Levine said that Java 1.13 offered so many features, that the project was completed without a single line of platform-dependent code.

Chakra is unique as groupware because it doesn't require a server. Users can open a session at any time with others, while all parties are responsible for the security of their own computers. Chakra costs $1,000 per user or $50,000 for an unlimited site license.

For more information, including how to buy and implement Chakra, go to **www.lab.com.**◆



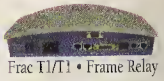
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TUCOWS

Scott Swedorski

DNS AND FINGER UTILITIES

Scott Swedorski is president and founder of TUCOWS, The Ultimate Collection of Winsock Software. He lives in Flint, Michigan with his wife, Vicky and 2 daughters, Emily and Ashley. After joining the army at the tender age of 17, Scott received his degree in Computer Information Systems from Mott College, and received an Honorable Discharge after 8 years service. Scott welcomes input from Internet users and software developers at **tucows @tucows.com**.

If all goes well, there are going to be a new series of domain names next year. Those web masters who have been locked out of their "first choice" for domain names will now have a second chance . . . if the process is approved and accepted across the Internet. In addition to geographical domains and .com, .net and .org, there will be seven new top-level domains, .firm, .store, .web, .arts, .rec, .info, and .nom

The different domains reflect specific special interests:

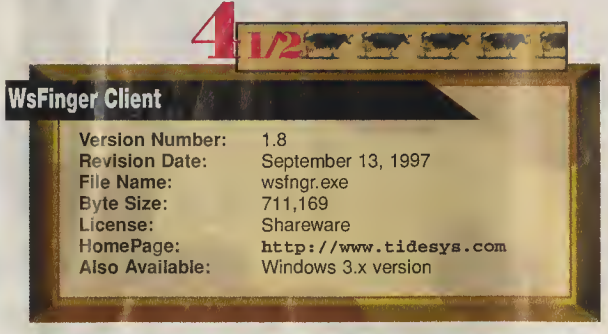
.firm - businesses and commercial enterprises
.store - retail establishments
.web - organizations emphasizing activities related to the World Wide Web
.arts - organizations emphasizing cultural and entertainment activities
.rec - organizations emphasizing recreational and entertainment activities
.info - organizations providing information services
.nom - individuals who want a personal identifier, a personal name or *nome de plume*.

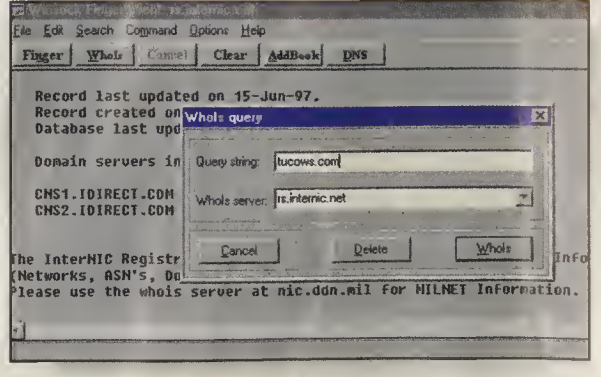
The organization that is spearheading the effort to have the new names established is the GTLD-MoU. The long-winded acronym stands for Generic Top Level Domain Memorandum of Understanding. This refers to the document as well as the companies that have organized under the MoU. These companies will be alternative registrars for the new domains, and many are accepting pre-registrations for domain names months in advance of implementation.

The problem with the GTLD-MoU is that it is not yet supported by InterNIC or the government, both have financial and political interest in ensuring that control remains centralized. There have been objections that each ISP will be forced to upgrade equipment and reconfigure routers for the new top-level domains. Critics have expressed concerns that this may lead to the "splitting" of the Internet. "I can't see that happening," says Colin Campbell, president of Domain Direct (**www.domaindirect.com**), a TUCOWS-affiliated company, and one of the new registrars. "Everyone on the Internet, including InterNIC and the various world governments knows that the value of the Internet is its universality. To split it up makes no sense. We feel there is time and room for compromise."

The truth is that there are not enough unique domain names to go around. Our *Grazing Grounds* columnist, Brandi Jasmine, is the web master of an astrological site. She searched through a couple dozen variations of a domain name for an astrology site and they were all taken. "I settled for using a company name but **www.twostar.com** does not have the immediate appeal of **www.astrology.store**," she said. "I know many other companies and organizations in a similar fix. The new domains give us a fair chance at a domain name our readers can easily remember." Of course, pundits have pointed out that the same companies that are hoarding addresses in .com will simply reserve large blocks of names in the new domains, and eventually the same problem will reappear.

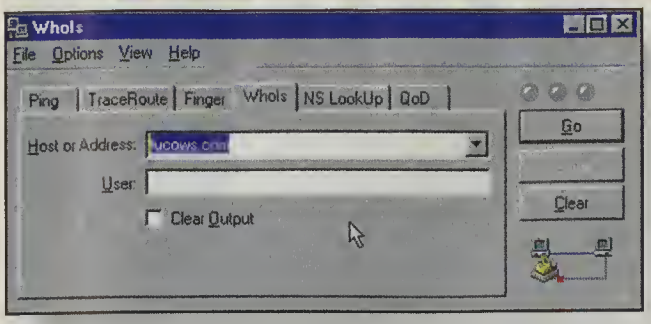
While you are registering your new domains, keep in mind that there is no guarantee that the GTLD-MoU will be put into place, and it won't become effective until at least March 1998. You may want to check current registries for your preferred domain. Finger and DNS Lookup tools will help you with the search.



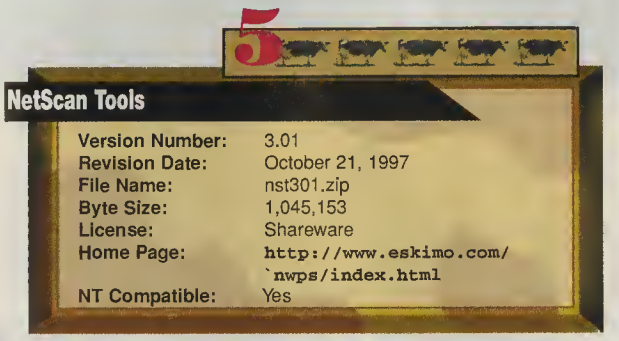


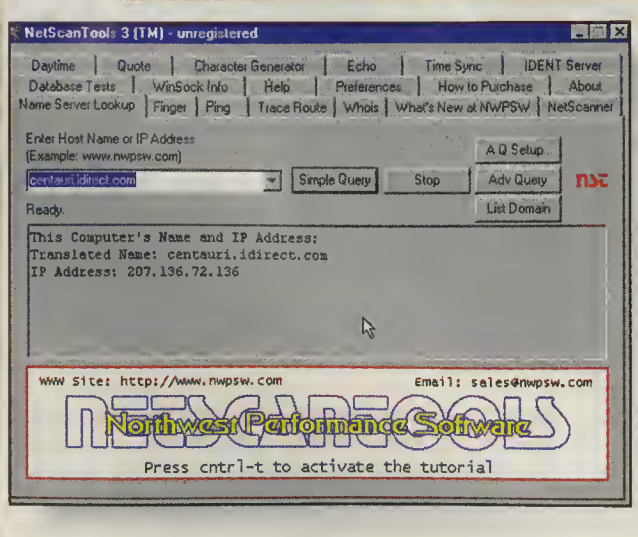
The problem with most Finger applications these days is that many ISPs are sealing off Finger requests, as they are one area easily abused by spammers. WsFinger offers WhoIs and domain name searching, in addition to the basic Finger command, in a simple, easy-to-use Windows client.





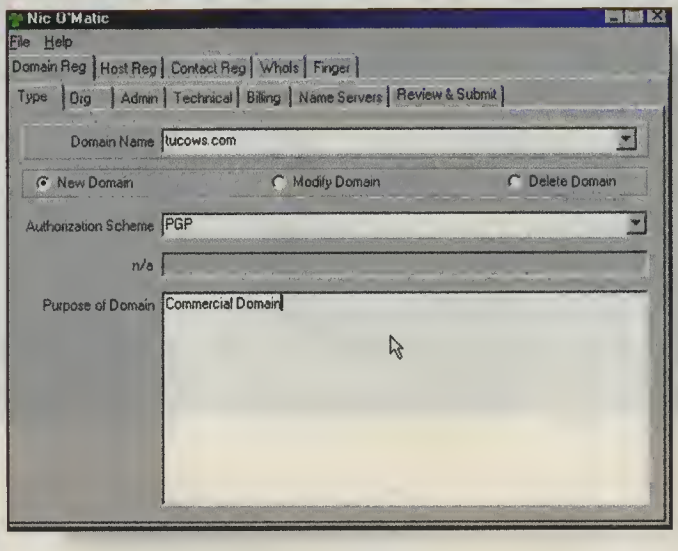
CyberKit offers Ping, TraceRoute, Finger, WhoIs, Name Server LookUp and Quote Of The Day features in an interface similar to Windows' "find files" feature. This freeware program is easy to use and configure for your precise needs.





One of the most comprehensive programs available, NetScan offers Finger, Ping, TraceRoute, Who is, daytime quote, time synchronizer, URL grabber, IDENT server, sockets info and much more. The "What's New at Northwest Performance Software" feature can connect you to a file at NWPS that gives you up-to-date information, FAQs and URLs on the company and its software (a creative use of their own technology). The same feature can be used browser style, to get a text-onIy version of your favorite web pages.





Take the chore out of registering and maintaining domain names, hosts and contacts with InterNIC. Before Nic O'Matic, you had to fill out clunky text-file templates and mail them in, or use InterNIC's slow web site. Nic O'Matic allows you to quickly check Who is, DNS and Finger, create your registrations in a simple form, then auto-mails them to InterNIC when you're done. You can save your registries for future use so that you can save time on modifications and deletions.

Under InterNIC, a hodgepodge of policies, laws and administrative discretion have taken precedence over any form of conflict resolution. New laws and better service policies have improved the service at InterNIC . . . but not by much. Involving the private sector and Internet users in the process should improve service and add new dimension to the process. If you want to learn more about DNS or the new domains, check out Domain Direct's site or visit the GTLD-MoU site at (`www.gtld-mou.org`). ◆

THE INTERNET BY CITY

by Jack Rickard



Over the past six months we've been somewhat diverted by a project to derive relative test/measurement data for the now 37 backbones profiled in our quarterly ***Directory of Internet Service Providers***. We recently completed the second issue of these test results, profiling some 34 backbones with over 3.6 million discrete web download measurements collected between August 1, 1997, and September 15, 1997. These tests do render a fascinating picture of the Internet and how it operates.

The purpose was, of course, to compare backbones to see if there is any advantage in connecting to one versus another from a simulated "end-user" footprint. As it turns out, there are fairly dramatic differences. But we also noticed that some cities routinely reported better or worse results of the same web site than others. And it occurred to us that we could just as easily view this "cube" of data from a different angle to see something quite different in result.

If we view the test measurement agent itself as the destination from 34 different backbones, we have a very rough approximation of how "connected" that city, or at least the test measurement agent location in that city, is in general to the 34 networks that we present as comprising the Internet. By simply sorting the data by city rather than by backbone, we come up with a fairly large number of discrete measurements spewn in roughly equal proportion across all the backbones. We can average the results of measuring all backbones for a specific city, and we can use it to tell roughly which cities are "better connected" than others.

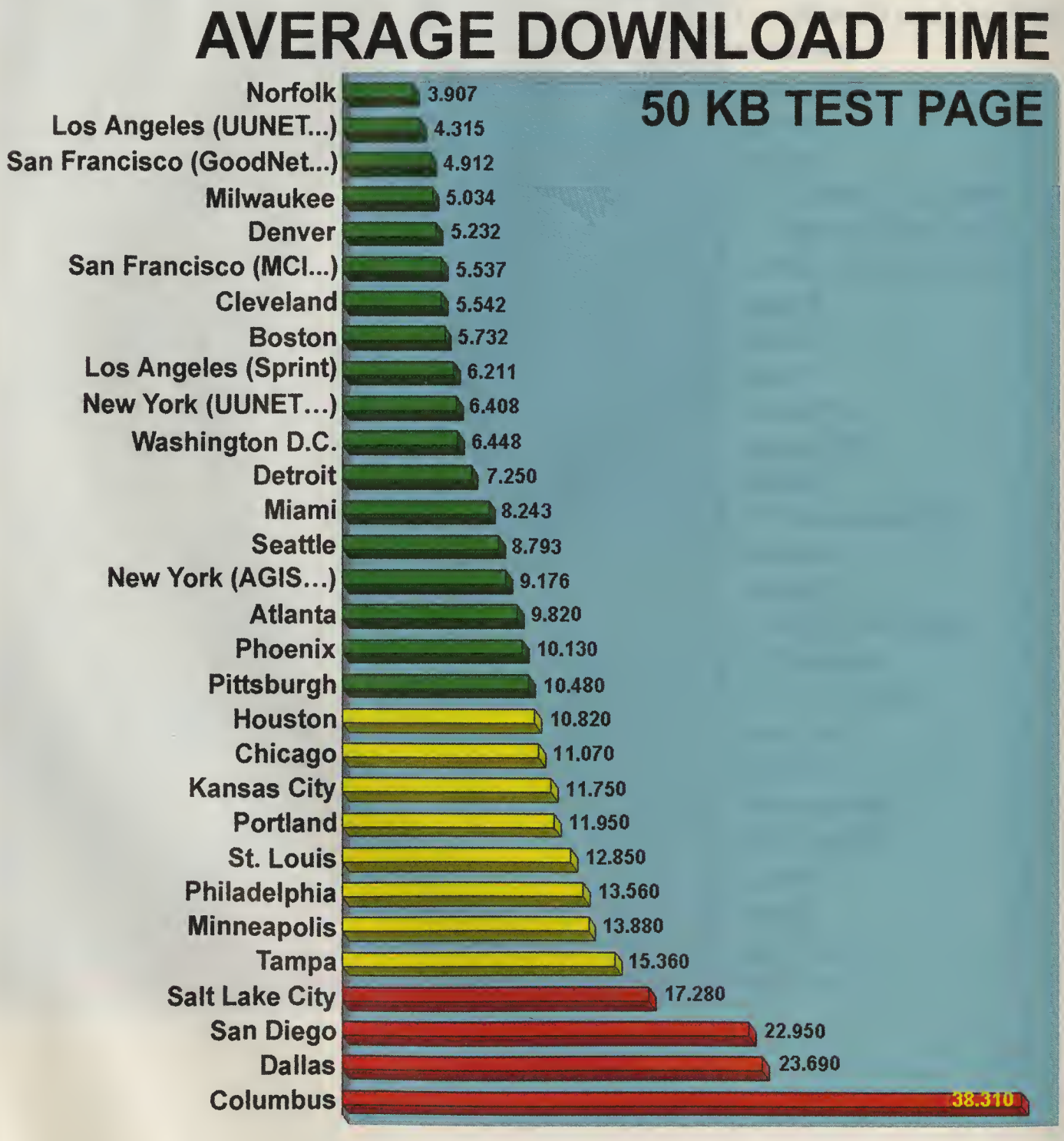
A glance at the backbone maps for most of these providers can easily illustrate why this might be. Virtually all backbones have major nodes in San Francisco, Atlanta, and Washington, DC. But Phoenix, Portland, or San Diego appear on only a few of these major backbone maps. Some of these cities are at the end of a "spur" on the Internet. There are only a few major trunks in, and all traffic must pass over them.

Indeed the topology doesn't appear to match demand so much as the convenience of locating sales offices and equipment rooms. Some of these cities have burgeoning populations of very well educated, technical people who sign up for Internet services at higher than average percentages. Yet there may be only a few major DS-3 type connections into the city.

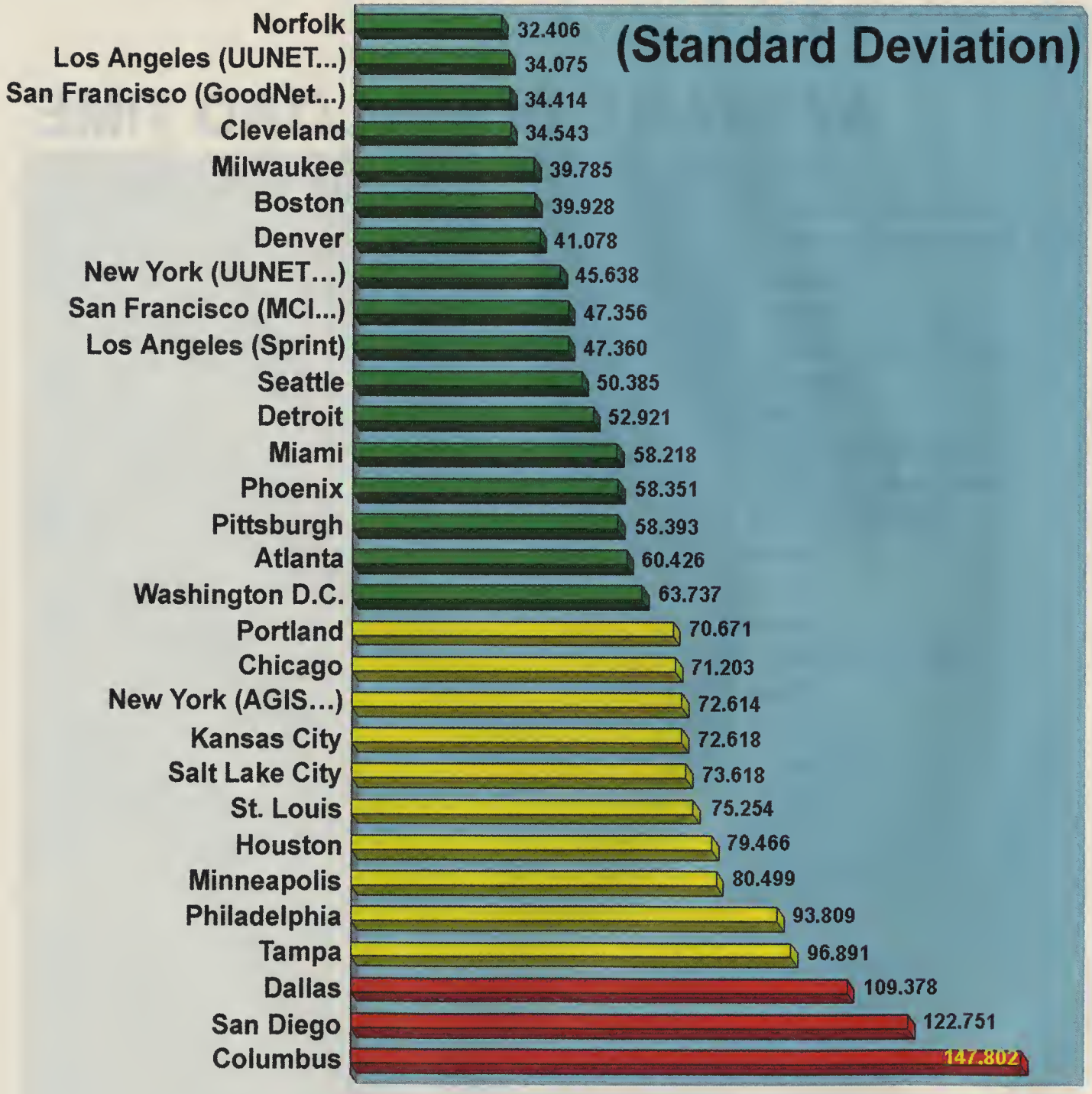
The reversal of data doesn't provide a perfect picture. Indeed, the design of the test machine is to measure the backbones, not the cities. San Francisco, for example, sports two measurement agents with one agent multihomed to three networks, and the other multihomed to two networks. Dallas, by contrast, has one agent connected to one backbone — CRL. Houston is similar with a single connection to AGIS.

In some sense the concept of a "city" doesn't quite map to the Internet topology in any rational manner. Nonetheless, we thought inverting the picture to show this data from the reverse perspective was interesting.

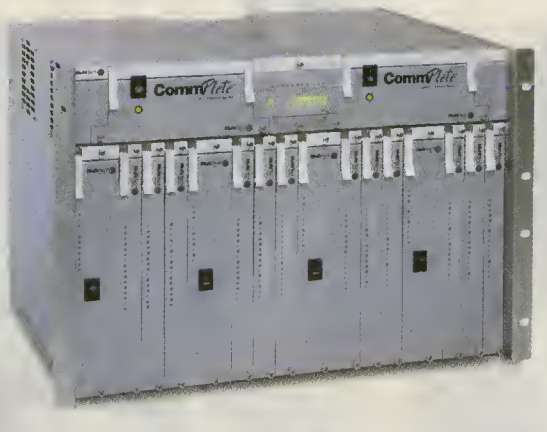
The accompanying graphs show the city where the test agent is located, the networks that it is ultimately connected to, the total valid data points collected by the test agent, and the average and standard deviation download times, averaged across 34 web sites located on the 34 measured backbones.◆



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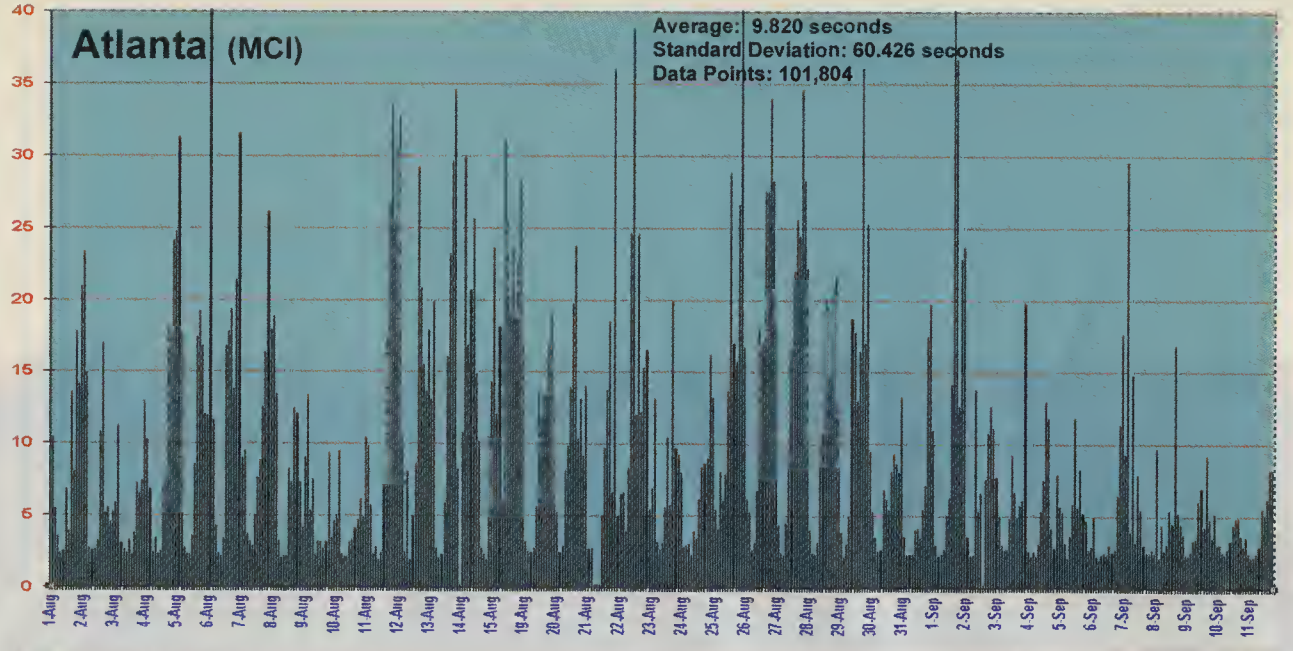
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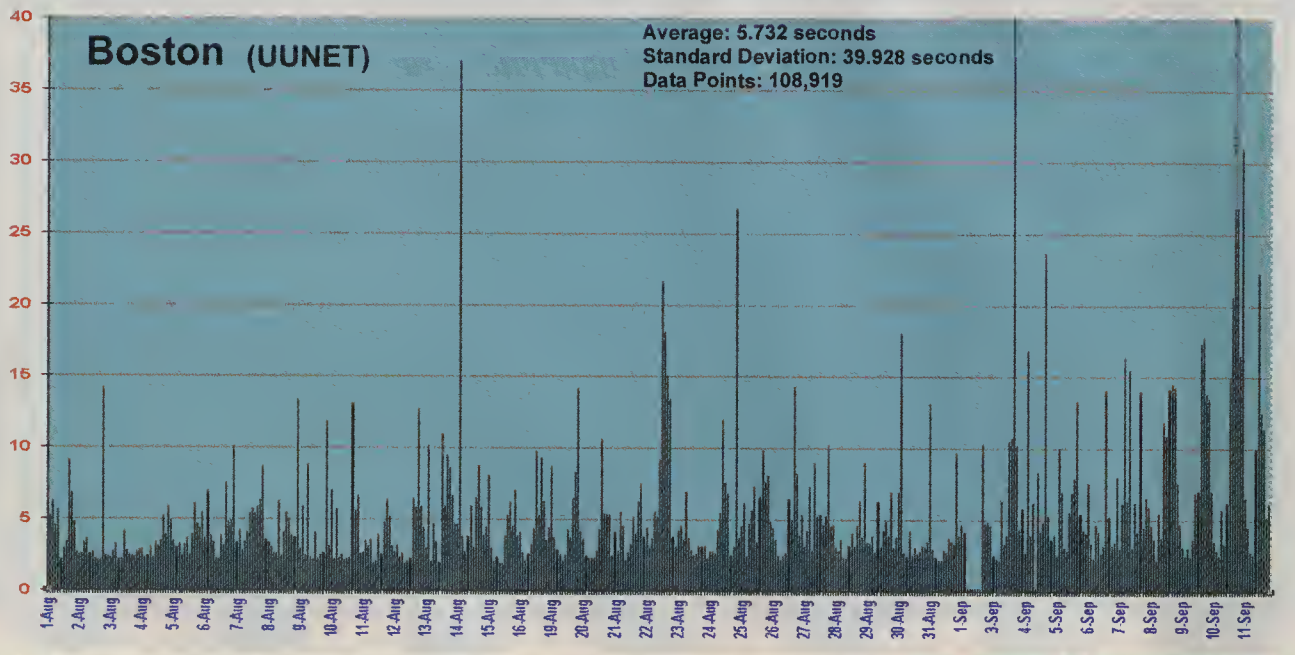
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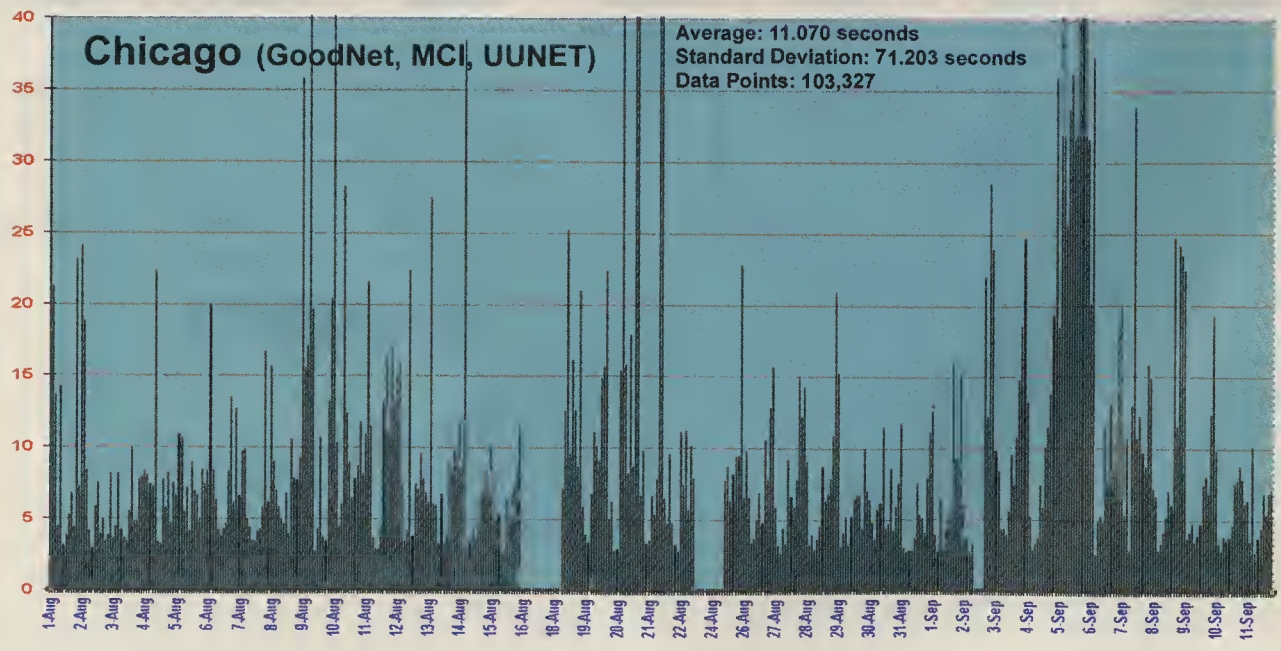
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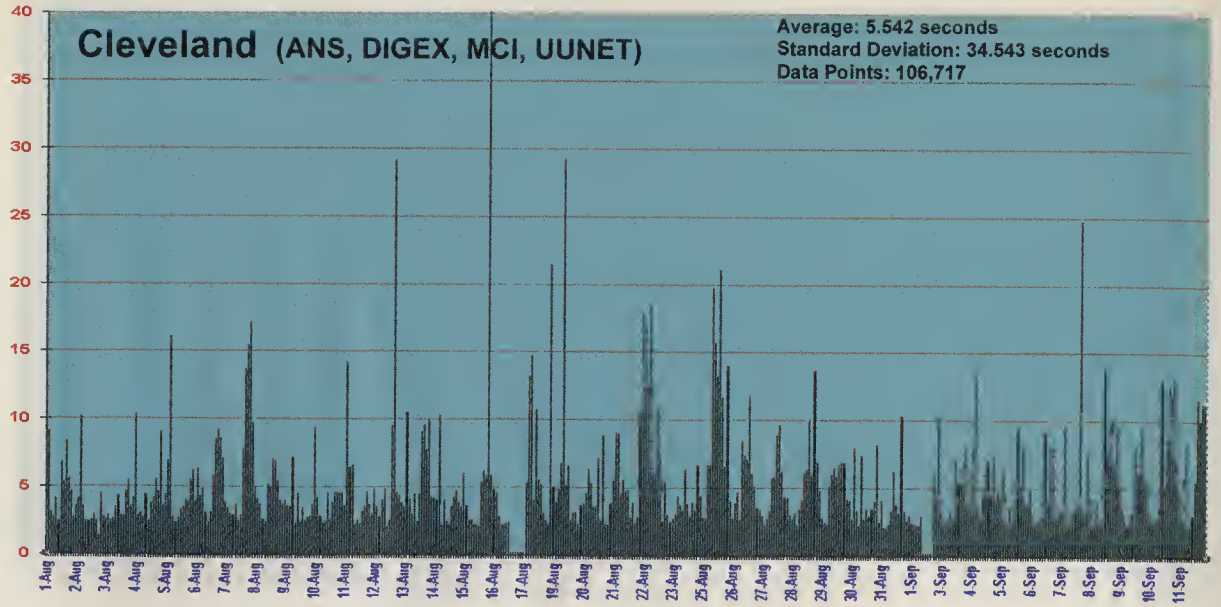
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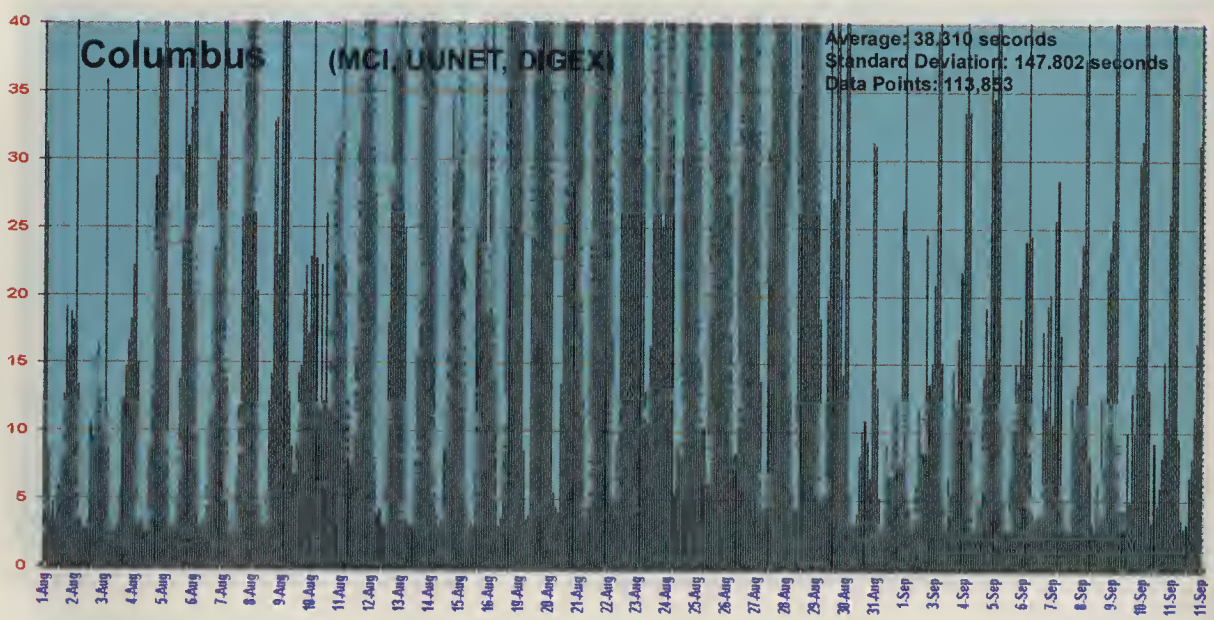
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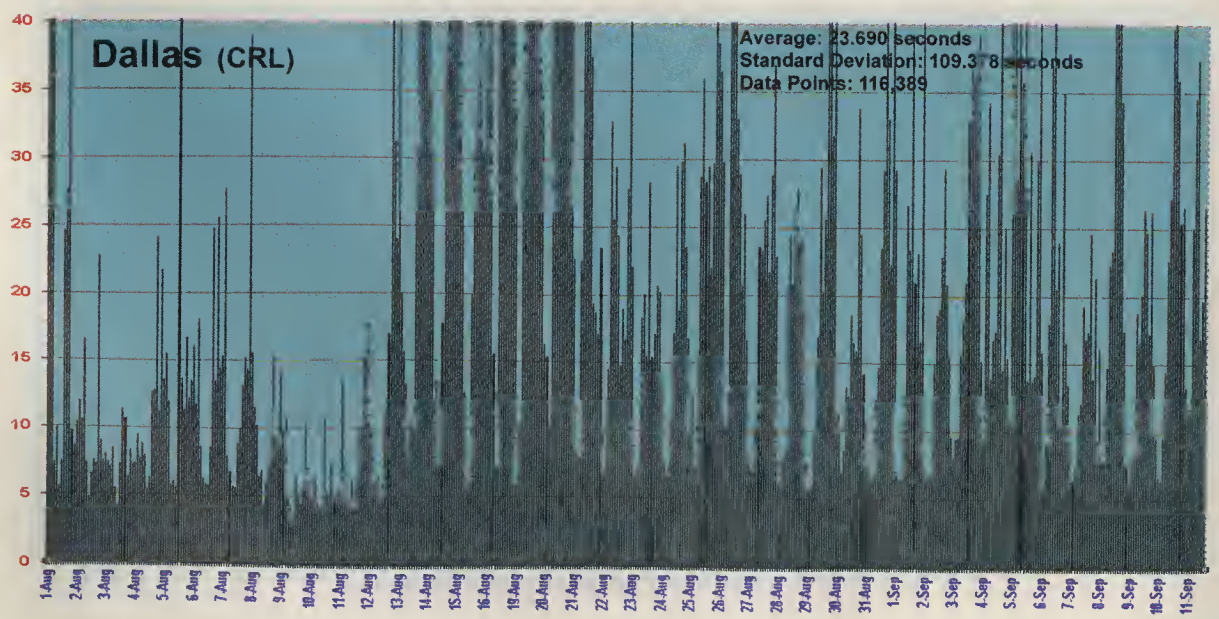

Atlanta (MCI)
Average: 9.820 seconds
Standard Deviation: 60.426 seconds
Data Points: 101,804

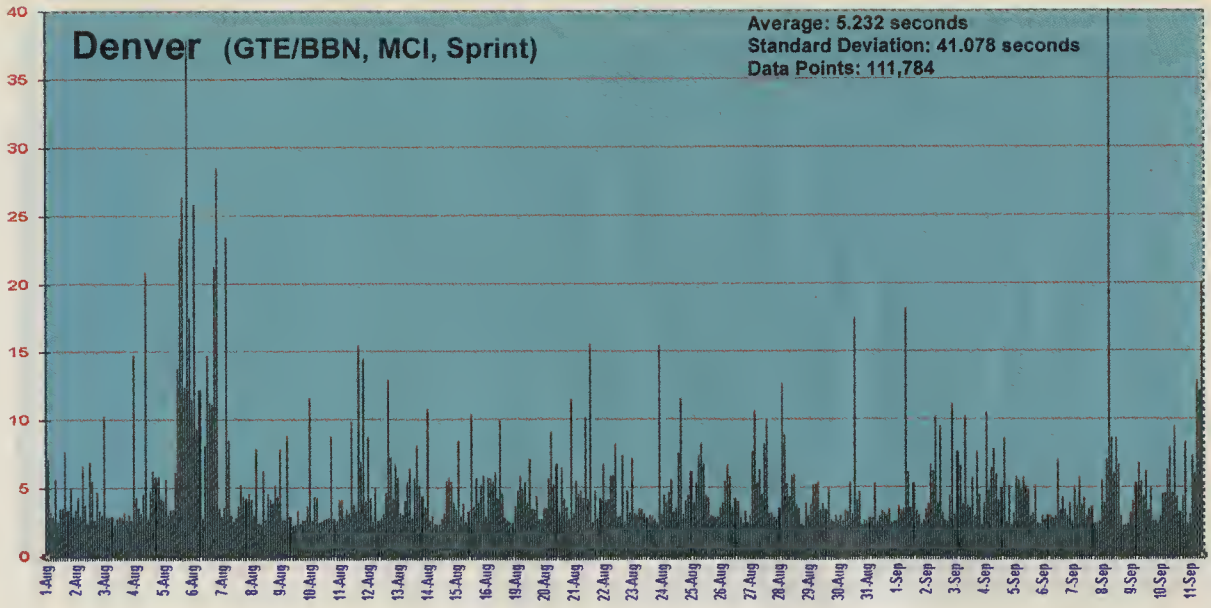

Boston (UUNET)
Average: 5.732 seconds
Standard Deviation: 39.928 seconds
Data Points: 108,919

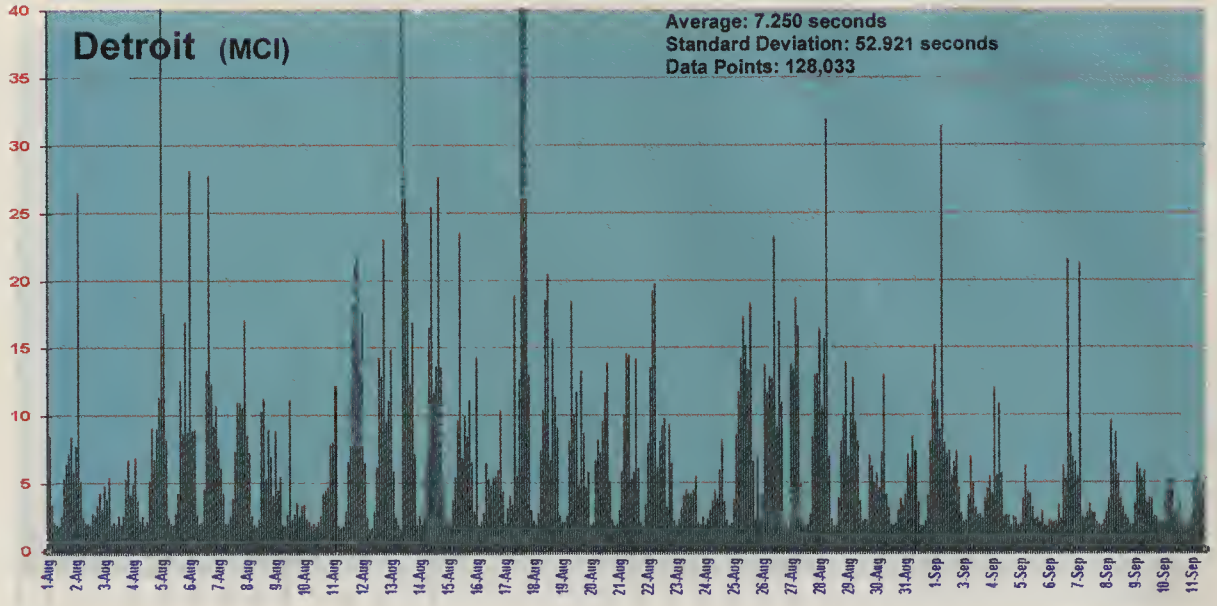

Chicago (GoodNet, MCI, UUNET)
Average: 11.070 seconds
Standard Deviation: 71.203 seconds
Data Points: 103,327

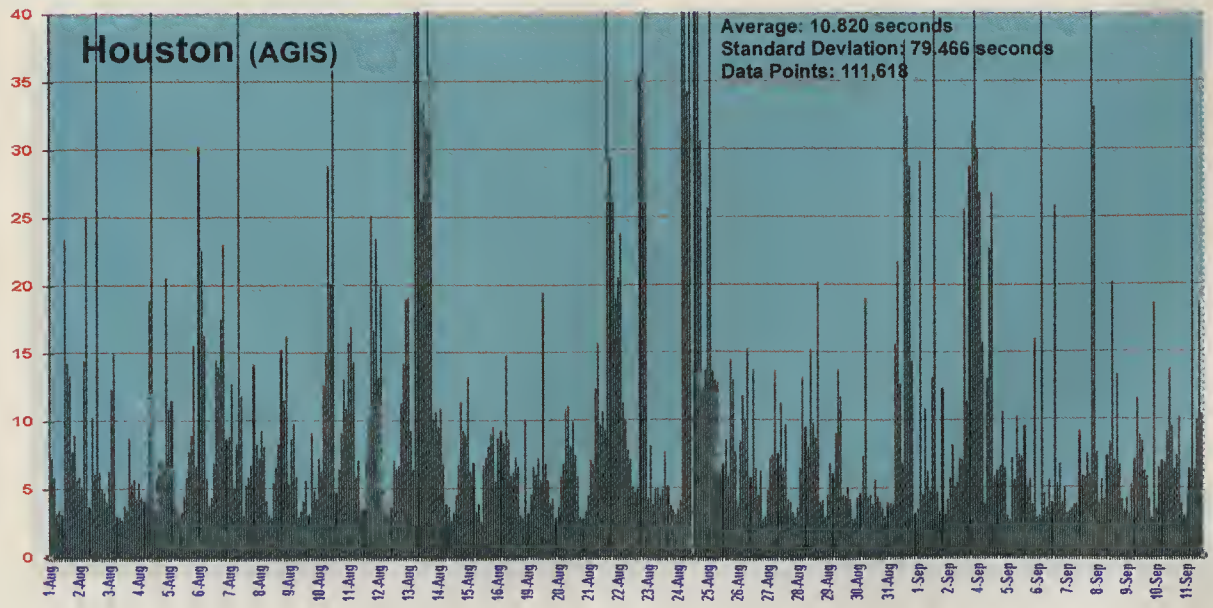

Cleveland (ANS, DIGEX, MCI, UUNET)
Average: 5.542 seconds
Standard Deviation: 34.543 seconds
Data Points: 106,717

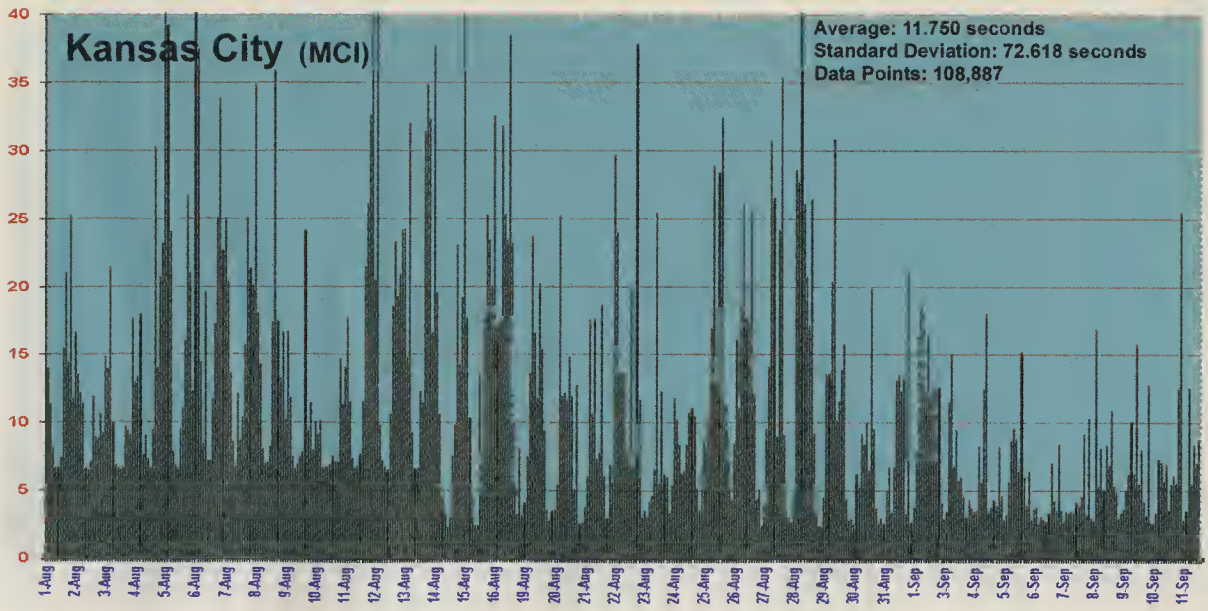

Columbus (MCI, UUNET, DIGEX)
Average: 38.310 seconds
Standard Deviation: 147.802 seconds
Data Points: 113,853

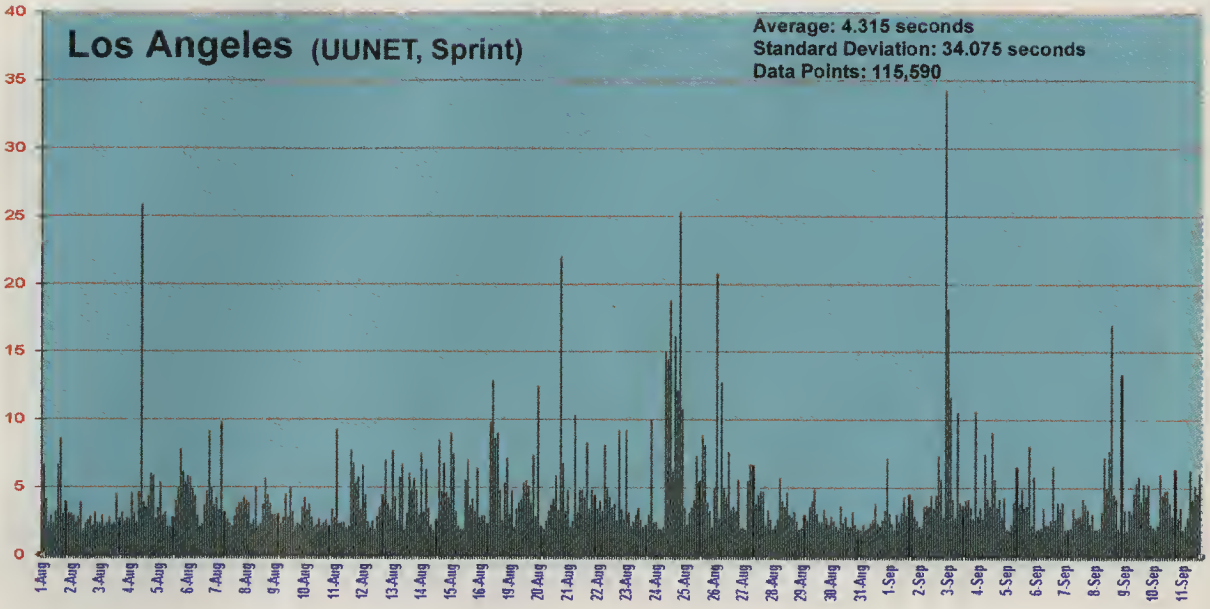

Dallas (CRL)
Average: 23.690 seconds
Standard Deviation: 109.378 seconds
Data Points: 116,389

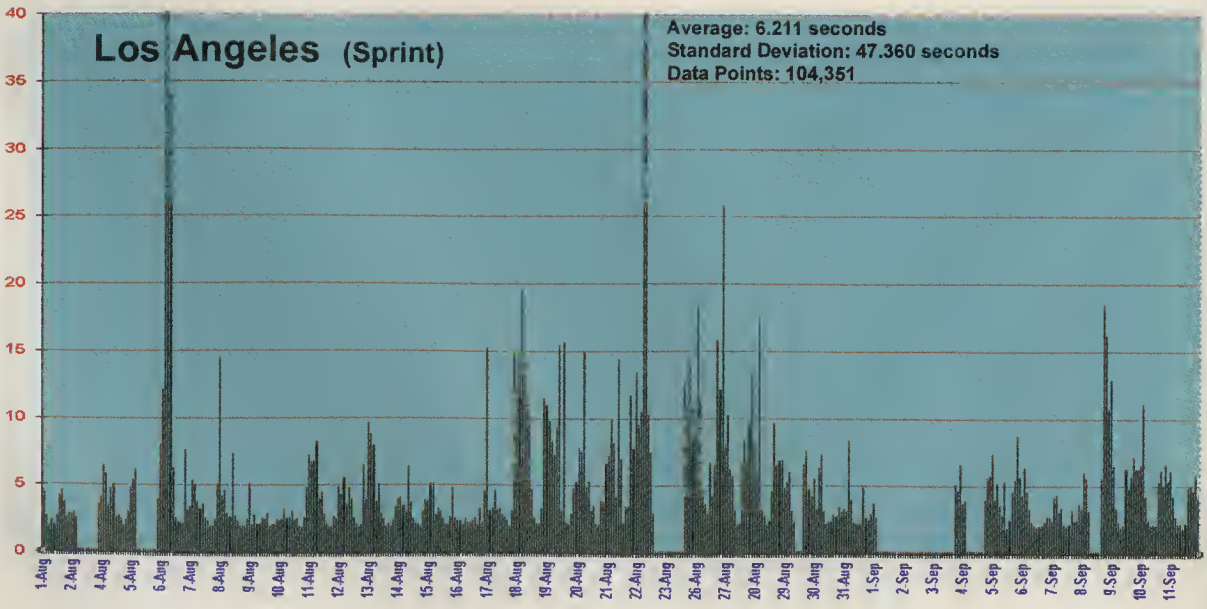

Denver (GTE/BBN, MCI, Sprint)
Average: 5.232 seconds
Standard Deviation: 41.078 seconds
Data Points: 111,784

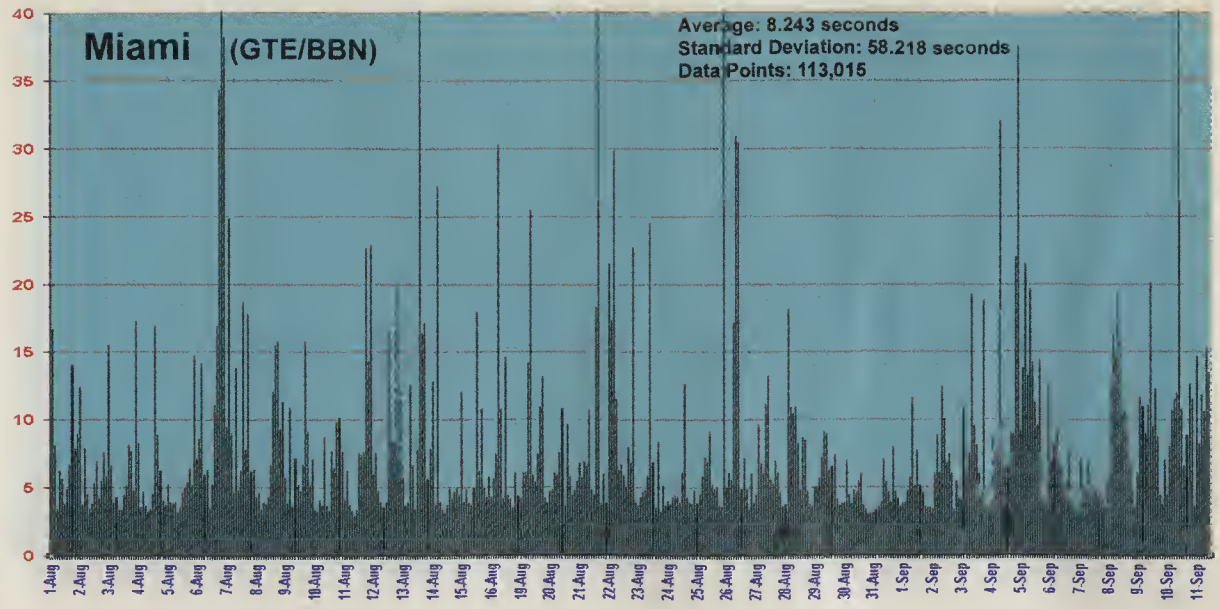

Detroit (MCI)
Average: 7.250 seconds
Standard Deviation: 52.921 seconds
Data Points: 128,033

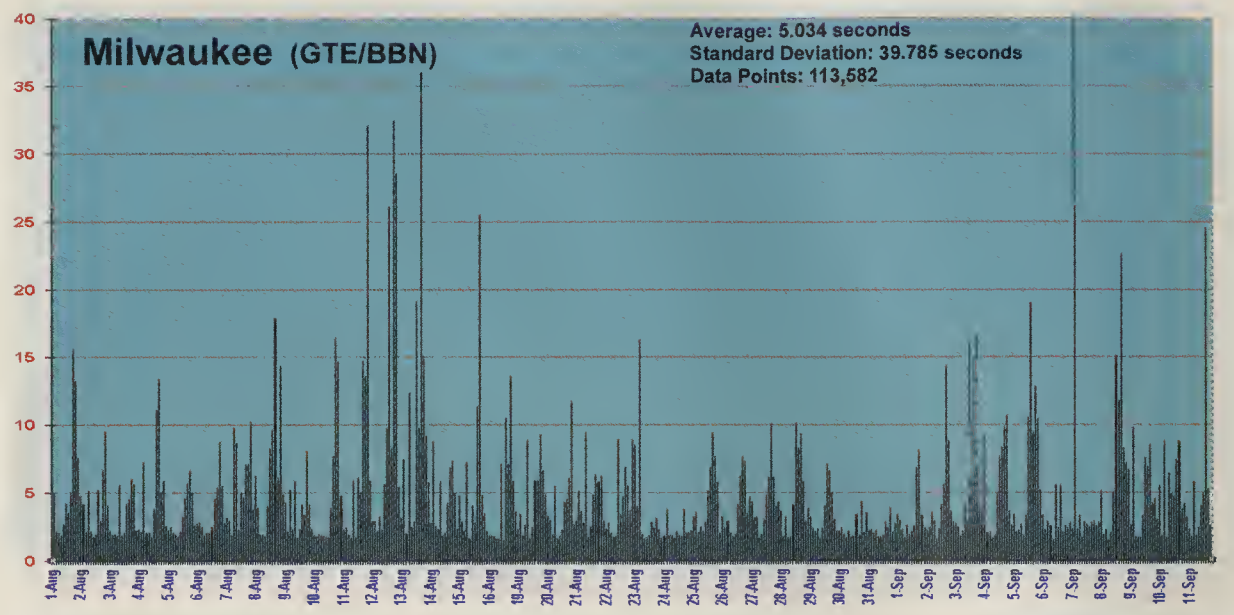

Houston (AGIS)
Average: 10.820 seconds
Standard Deviation: 79.466 seconds
Data Points: 111,618

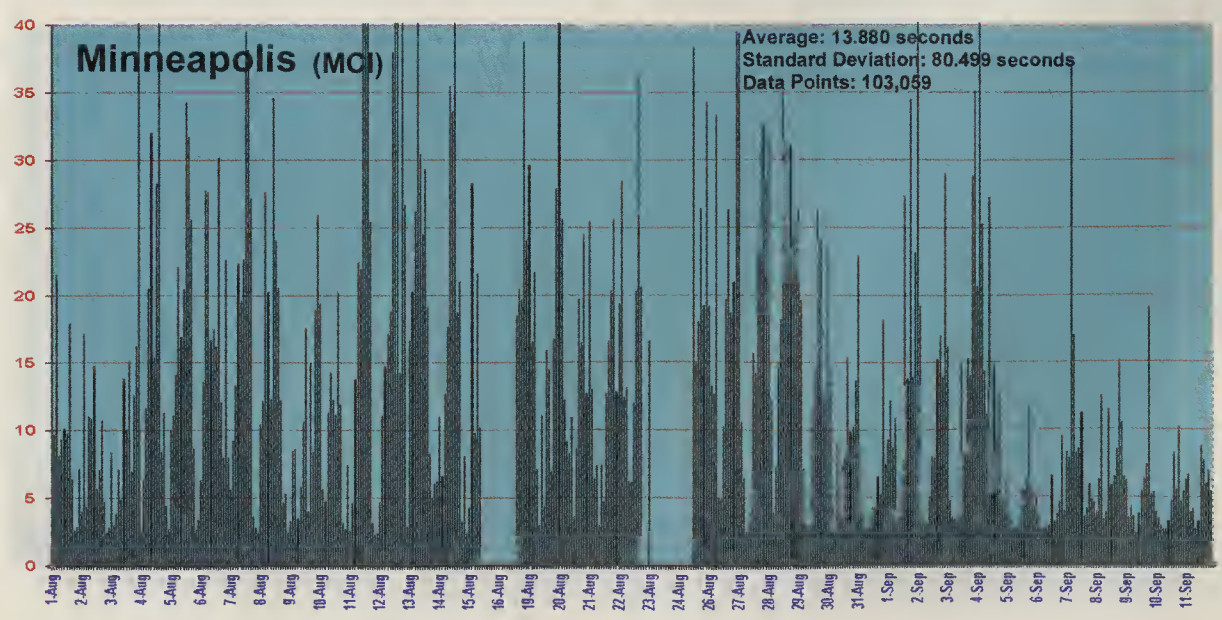

Kansas City (MCI)
Average: 11.750 seconds
Standard Deviation: 72.618 seconds
Data Points: 108,887

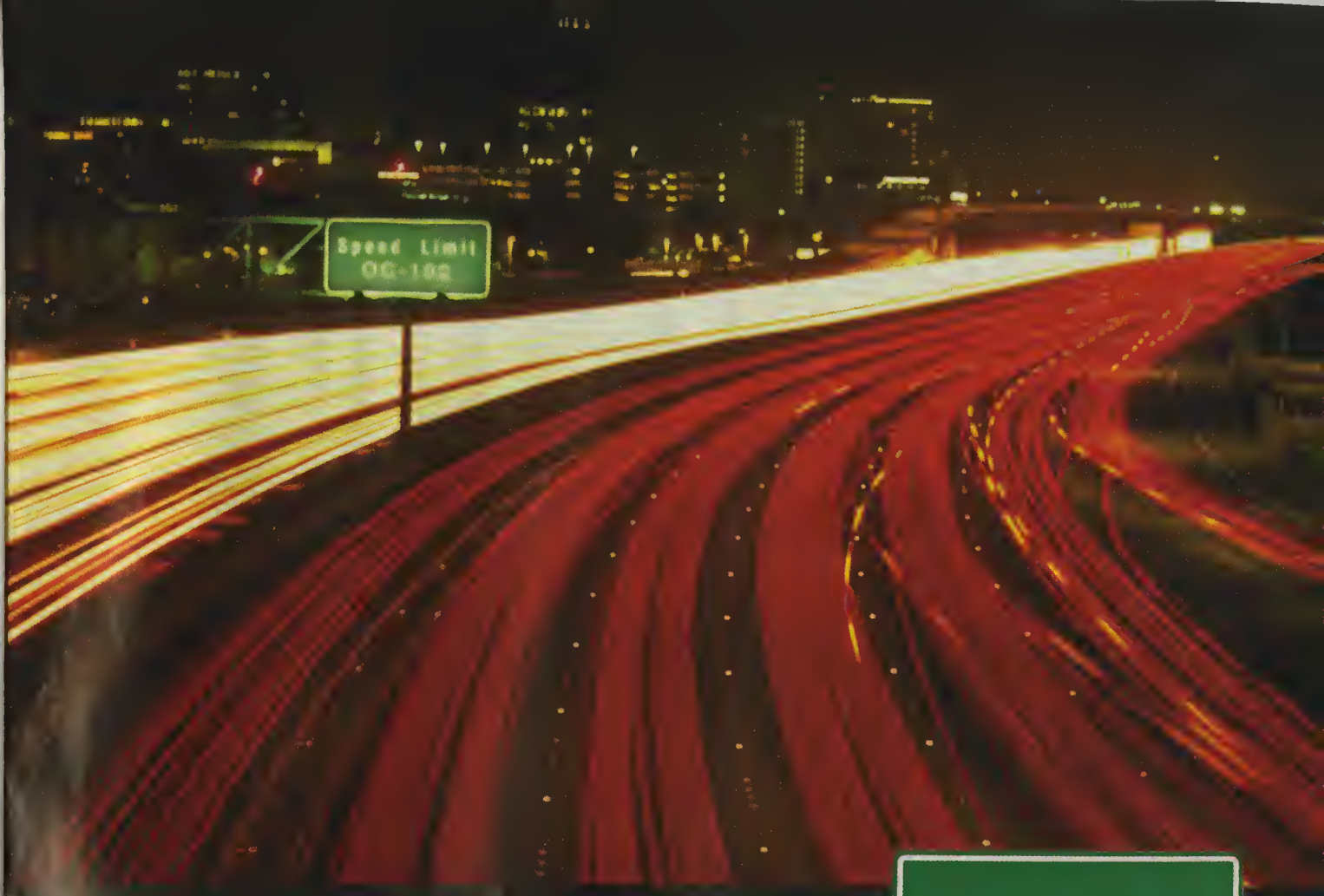

Los Angeles (UUNET, Sprint)
Average: 4.315 seconds
Standard Deviation: 34.075 seconds
Data Points: 115,590


Los Angeles (Sprint)
Average: 6.211 seconds
Standard Deviation: 47.360 seconds
Data Points: 104,351


Miami (GTE/BBN)
Average: 8.243 seconds
Standard Deviation: 58.218 seconds
Data Points: 113,015


Milwaukee (GTE/BBN)
Average: 5.034 seconds
Standard Deviation: 39.785 seconds
Data Points: 113,582


Minneapolis (MCI)
Average: 13.880 seconds
Standard Deviation: 80.499 seconds
Data Points: 103,059



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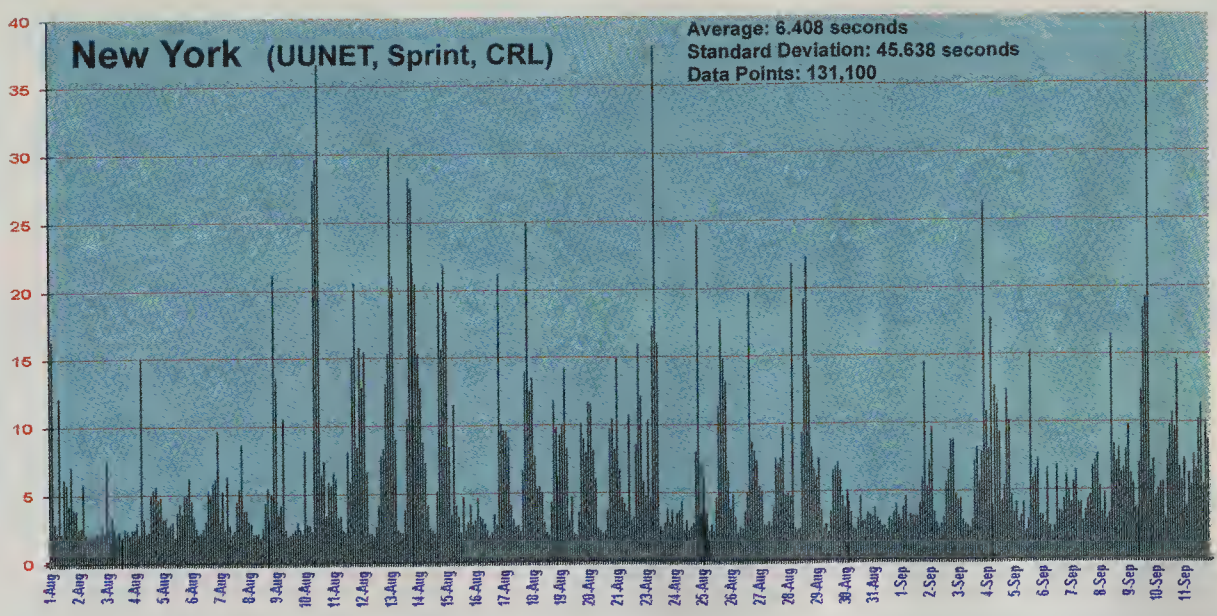
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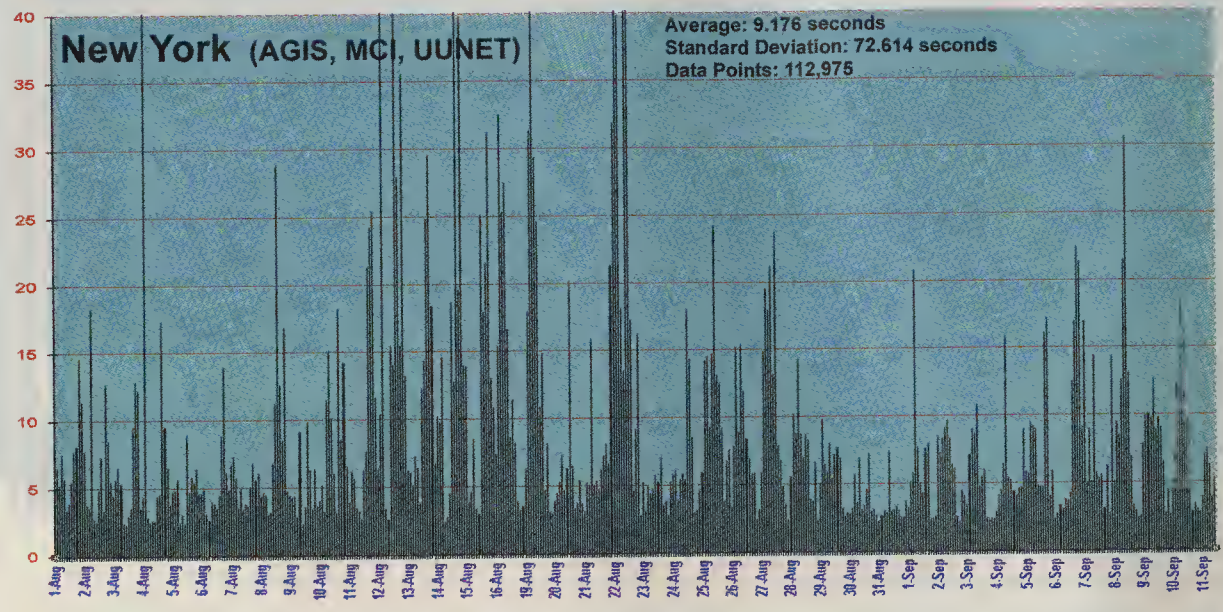
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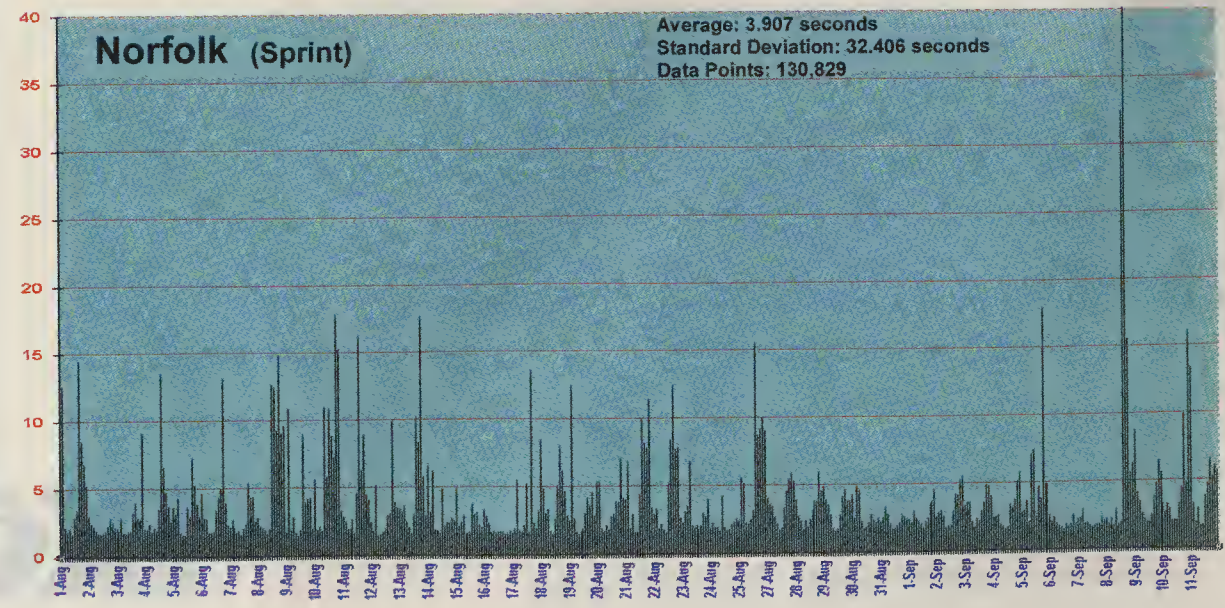
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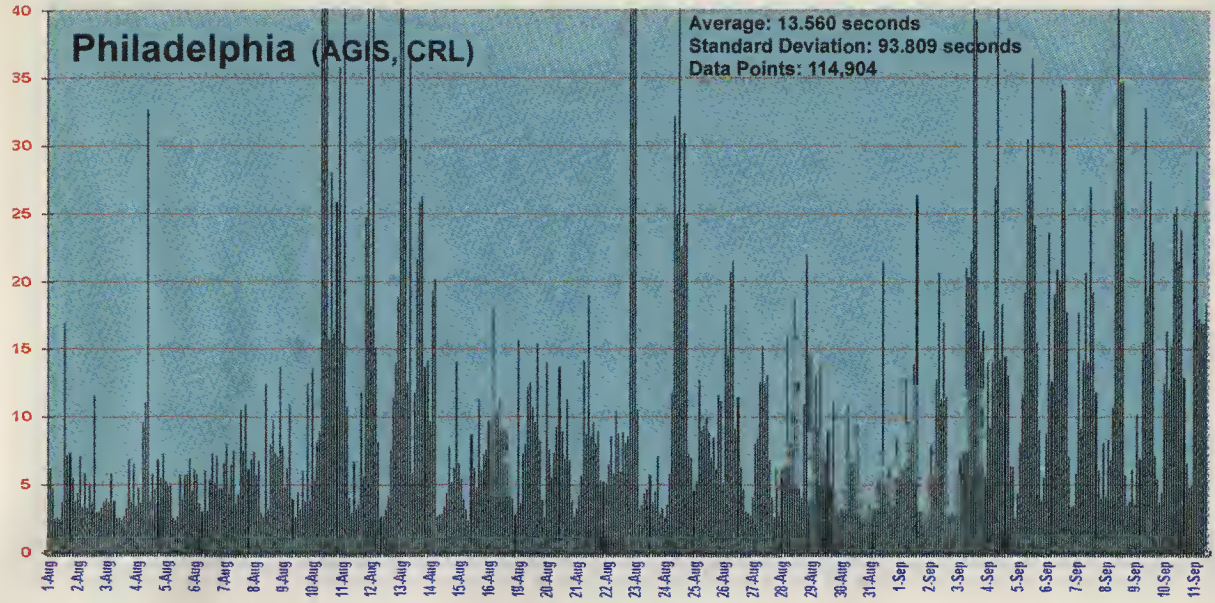
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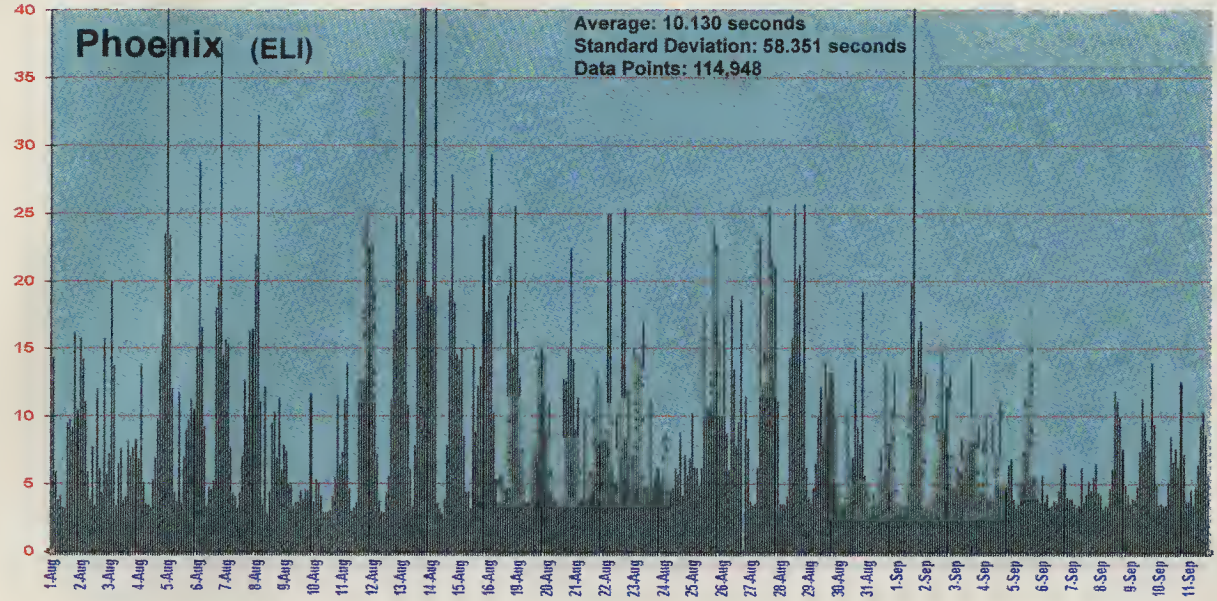
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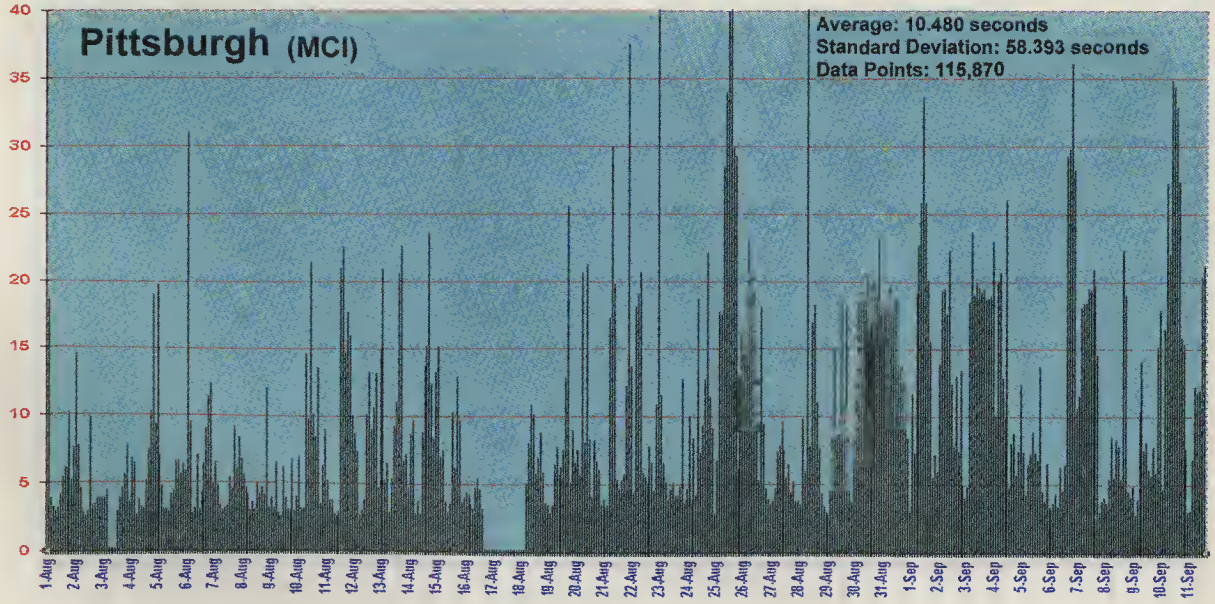

New York (UUNET, Sprint, CRL)
Average: 6.408 seconds
Standard Deviation: 45.638 seconds
Data Points: 131,100

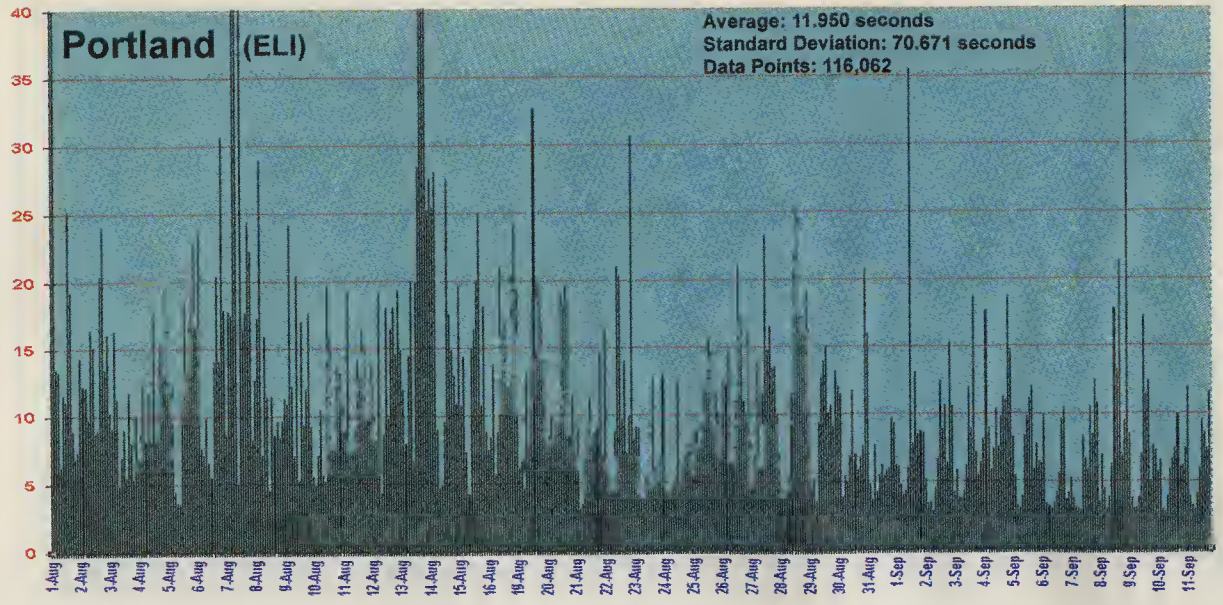

New York (AGIS, MCI, UUNET)
Average: 9.176 seconds
Standard Deviation: 72.614 seconds
Data Points: 112,975

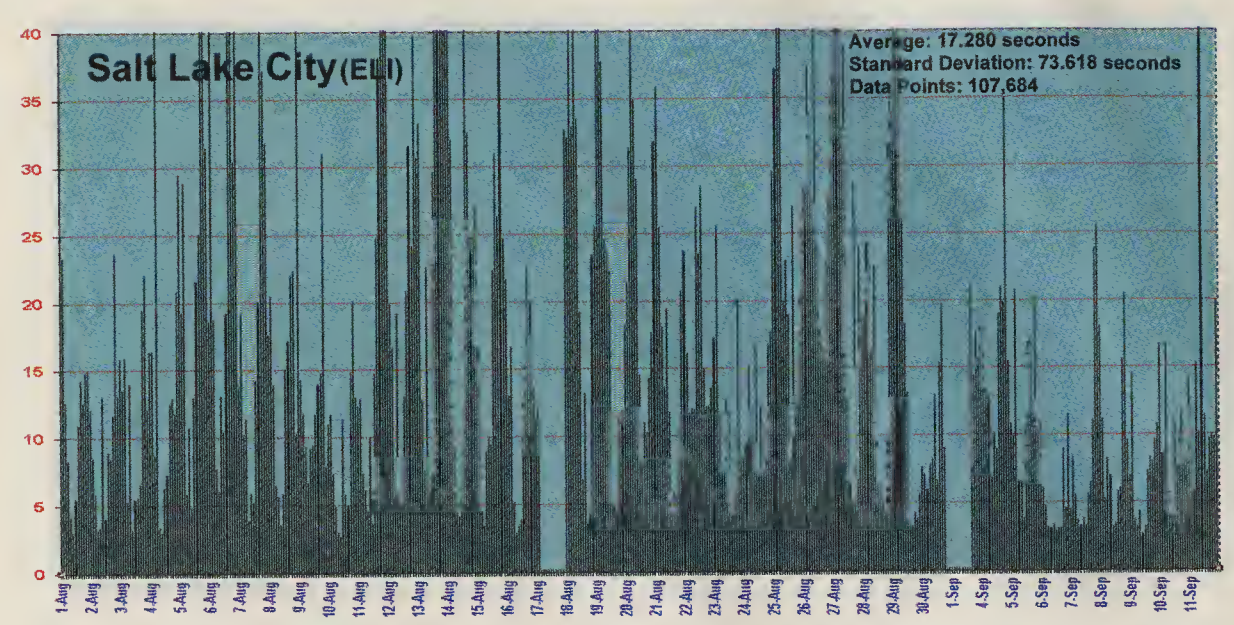

Norfolk (Sprint)
Average: 3.907 seconds
Standard Deviation: 32.406 seconds
Data Points: 130,829

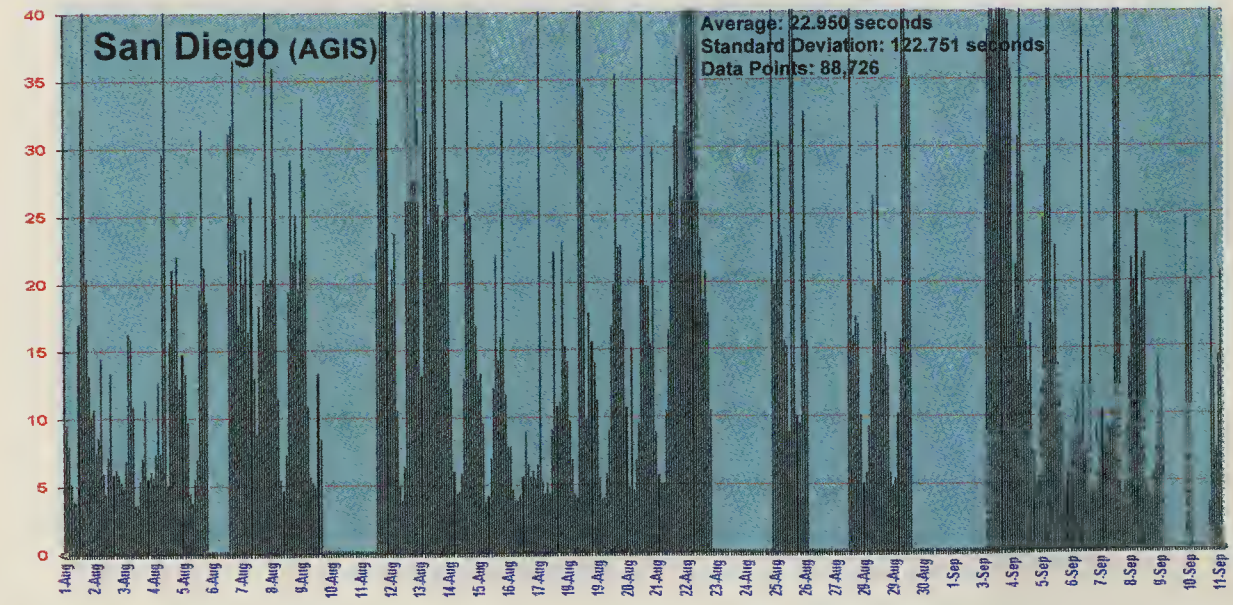

Philadelphia (AGIS, CRL)
Average: 13.560 seconds
Standard Deviation: 93.809 seconds
Data Points: 114,904

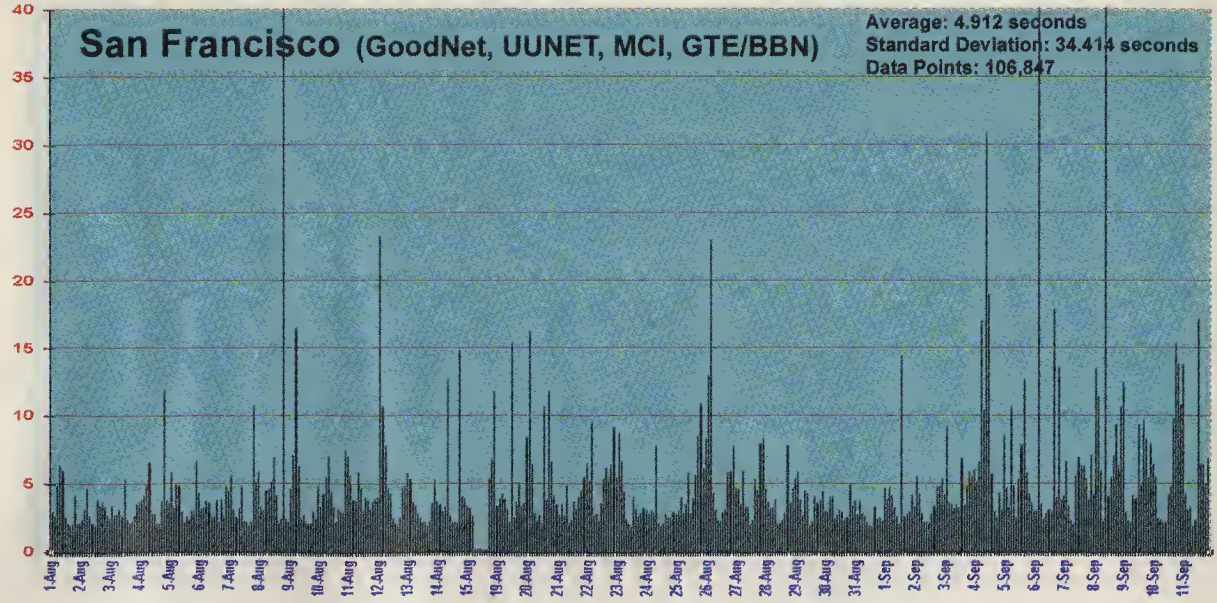

Phoenix (ELI)
Average: 10.130 seconds
Standard Deviation: 58.351 seconds
Data Points: 114,948

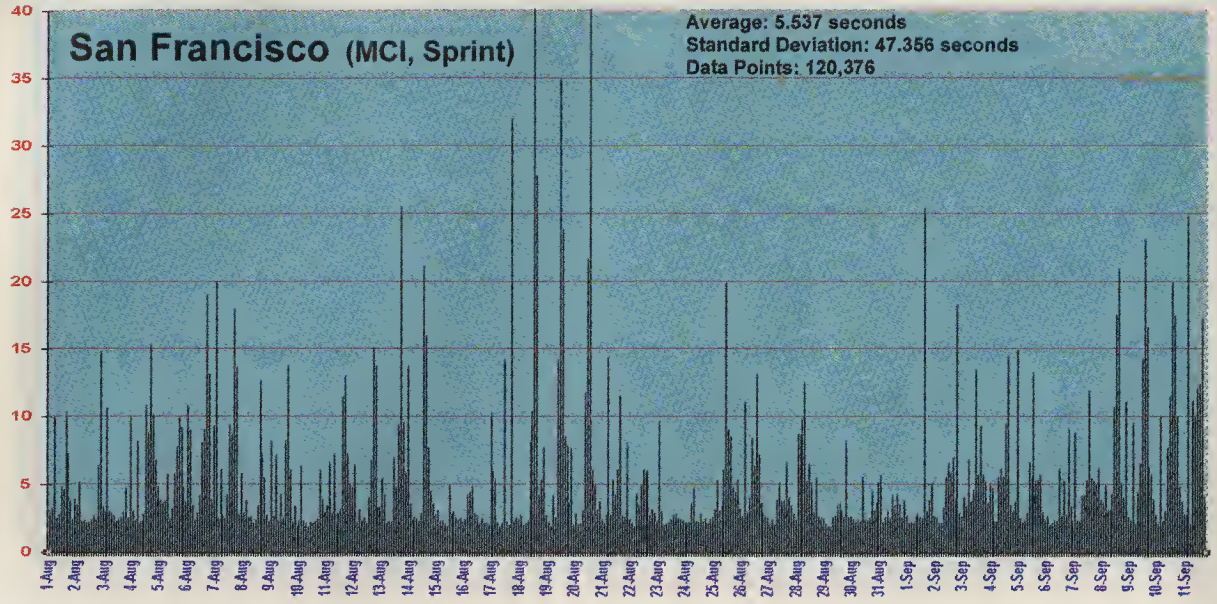

Pittsburgh (MCI)
Average: 10.480 seconds
Standard Deviation: 58.393 seconds
Data Points: 115,870

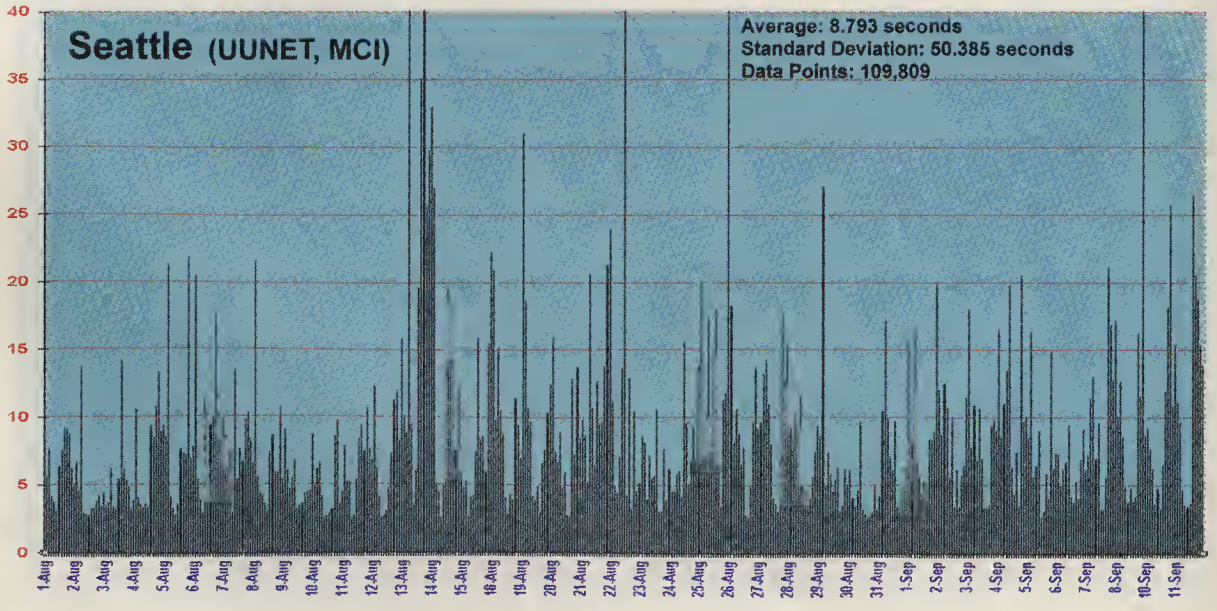

Portland (ELI)
Average: 11.950 seconds
Standard Deviation: 70.671 seconds
Data Points: 116,062

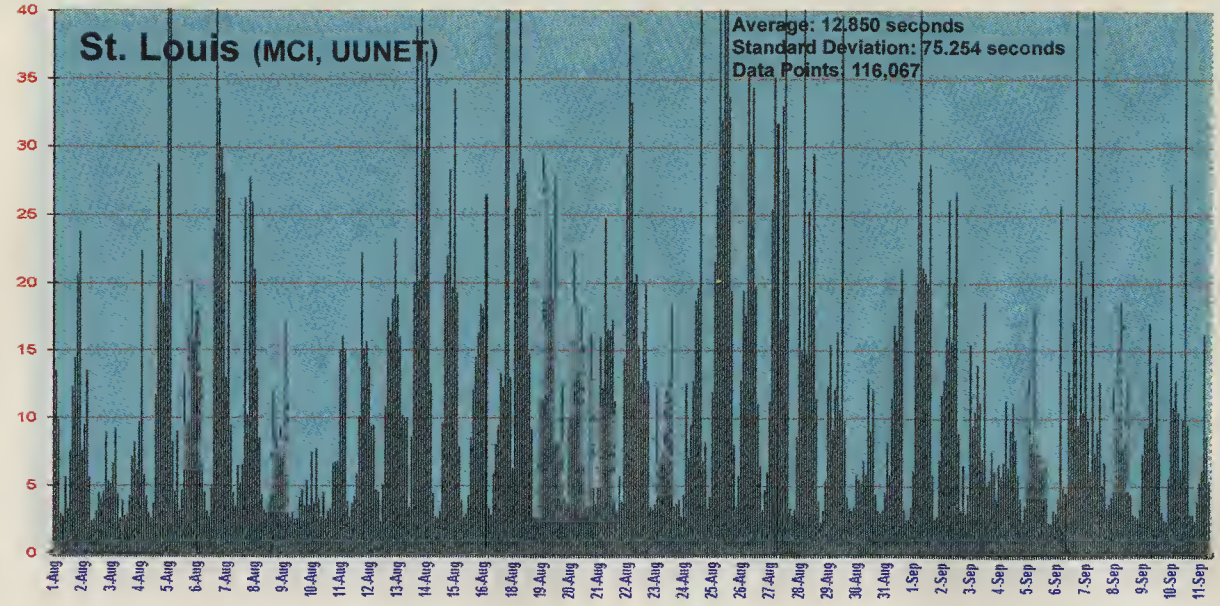

Salt Lake City (ELI)
Average: 17.280 seconds
Standard Deviation: 73.618 seconds
Data Points: 107,684

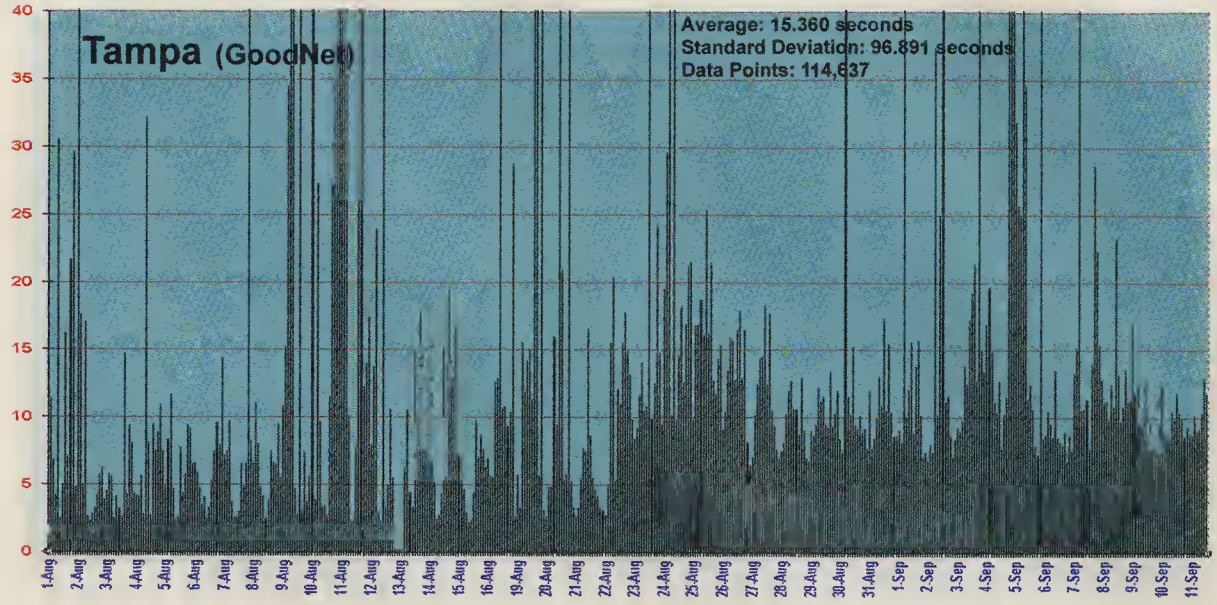

San Diego (AGIS)
Average: 22.950 seconds
Standard Deviation: 122.751 seconds
Data Points: 88,726

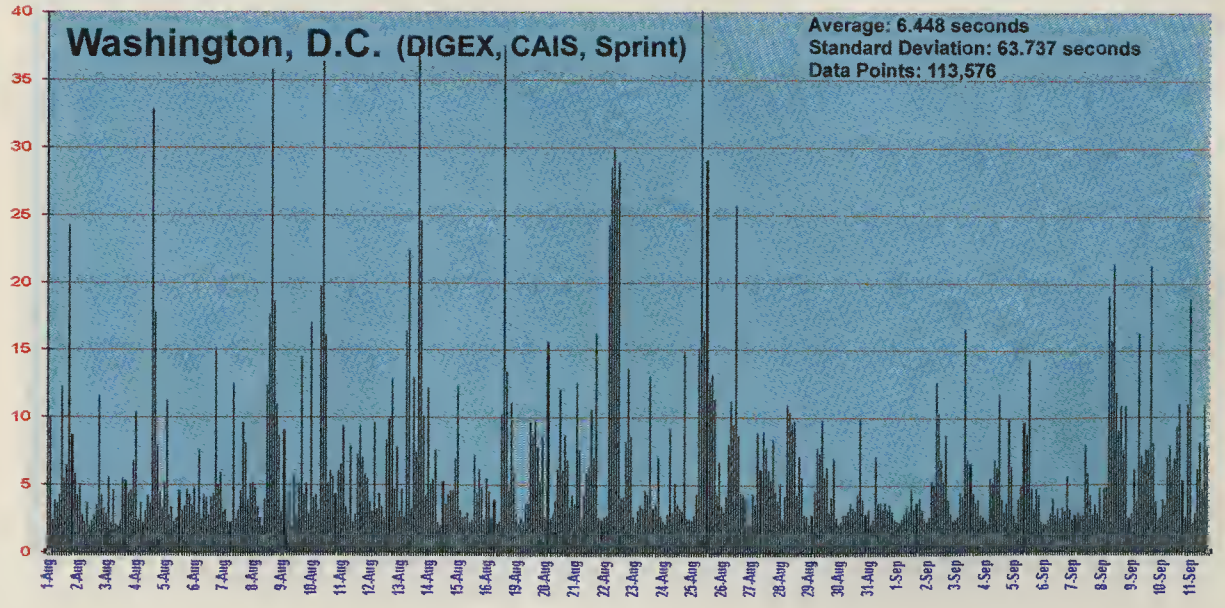

San Francisco (GoodNet, UUNET, MCI, GTE/BBN)
Average: 4.912 seconds
Standard Deviation: 34.414 seconds
Data Points: 106,847


San Francisco (MCI, Sprint)
Average: 5.537 seconds
Standard Deviation: 47.356 seconds
Data Points: 120,376


Seattle (UUNET, MCI)
Average: 8.793 seconds
Standard Deviation: 50.385 seconds
Data Points: 109,809


St. Louis (MCI, UUNET)
Average: 12.850 seconds
Standard Deviation: 75.254 seconds
Data Points: 116,067


Tampa (GoodNet)
Average: 15.360 seconds
Standard Deviation: 96.891 seconds
Data Points: 114,637


Washington, D.C. (DIGEX, CAIS, Sprint)
Average: 6.448 seconds
Standard Deviation: 63.737 seconds
Data Points: 113,576

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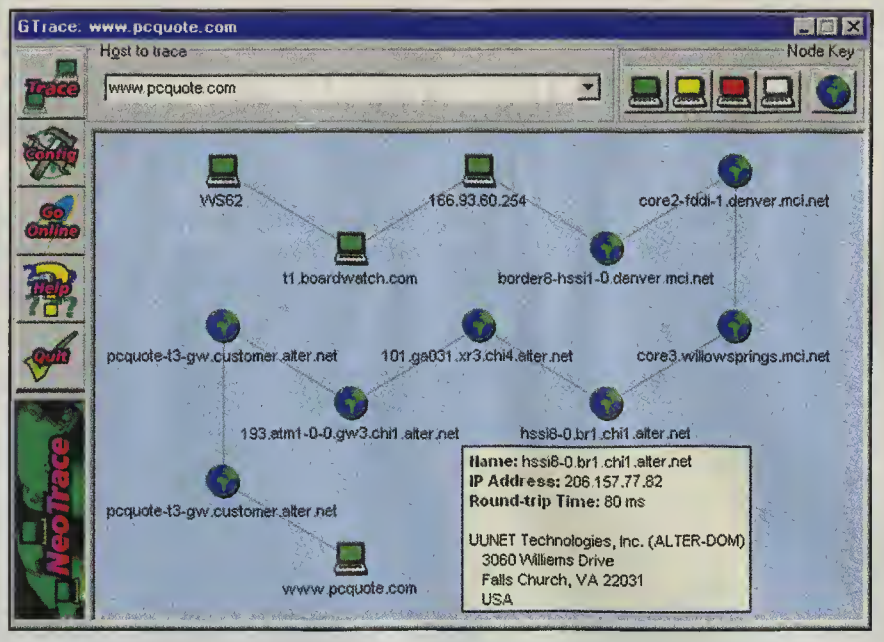
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White Pine

TRACEROUTE REVISITED AND NEOWORX NEOTRACE PROGRAM



By Jack Rickard

One of the more useful, if perhaps unglamorous, utilities available to Internauts is a program titled TraceRoute.

TraceRoute was originally written by Van Jacobson of Lawrence Berkeley National (**van@helios.ee.lbl.gov**) and the TraceRoute code is still freely available from version 1.0 through version 1.4 at **ftp://ee.lbl.gov/old**. The program derived from a conversation with Steve Deering of Stanford University in 1988.

In it's simplest usage, TraceRoute is simply a command line program where you enter a domain name:

```
traceroute boardwatch.com
```

This results in a list of routers between your site and the entered domain with the first router encountered at the top of the list, and the destination domain machine at the bottom. At each site, both the name and IP number are listed, along with typically three timing values that indicate round-trip packet propagation times.

In Windows 95, TraceRoute is named TRACERT for reasons only apparent to BillGatus of Borg. It is also only available from a DOS window. Drop to a DOS window and enter TRACERT BOARDWATCH.COM to get essentially the same results.

TraceRoute essentially traces the route from your computer to any other computer on the Internet, listing all machines in the route between them.

About a year ago we did an article on TraceRoute and TraceRoute servers — machines that run TraceRoute to diagram the path from there back to you. We also put up a web page with a sampling of then available TraceRoute servers at **www.boardwatch.com/isp/trace.htm**. It remains one of the most visited pages on our web site a year later.

On November 16, 1997, a couple of ex-PKWare programmers released a new Windows 95 trace utility termed NEOTRACE that dramatically speeds up TraceRoute, puts it on a GUI interface, and does the reverse DNS and WhoIs lookups to derive any available information on the site. This program is so easy to use, and works so much faster than the standard TraceRoute, that we thought it was worth revisiting the topic.

HOW TRACEROUTE WORKS

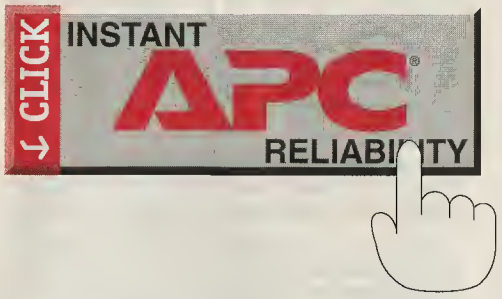
TraceRoute wasn't really designed as any of the normal control message elements of any protocol. It is actually a small program that relies on some predictable response activity of routers and servers on the Internet.

Routers receive Internet Protocol packets, and, in fact, packets of other protocols of various sizes and flavors, and in most cases simply pass them on. A router will have several interfaces usually. It receives a packet in one interface, opens the packet to find the DESTINATION ADDRESS, and then does a lookup in a routing table to determine which of its other interfaces (to other routers) is the best place to "route" the packet. In basic operation, it's actually not a terribly smart device. To a router with three interfaces, for example, the entire global Internet falls into three categories - Interface 1, Interface 2, and Interface 3. The Interfaces can be serial ports, Ethernet cards, V.32 ports, or a specialized smoke signal rapidly-flappable-wet-blanket (RFWB) interface device. It doesn't matter. Open the packet, decide which port, and mail the puppy. In almost all cases, a router is the ultimate finger pointer — "This packet is somebody else's problem, and I'll pass it out port X for them to deal with."

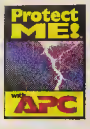
In the early days of TCP/IP networks, it was discovered pretty quickly that if you sent out a packet and there was some configuration anomaly in a single router in the network, you could create a routing loop where packets could enter, but they would never get back out. The packet would simply move from one router to another in a circle. These packets would accumulate in the network quite quickly and seriously slow things down for those packets that were actually going somewhere.

The solution was the addition of an 8-bit **Time-To-Live** (TTL) field in the Internet Protocol packet header. The sending machine could set this to any value between 0 and 255. Each router that handled the packet decremented this value in the packet header by one when it passed on the packet. If it received a packet that had a TTL of 0 or 1, instead of passing on the packet, it killed it. In this way, after a set number of "hops" through routers, in no case larger than 255 (the maximum value that can be expressed in a single 8-bit byte), a packet died and was removed from the network. In practice, TTL is the maximum number of hops a packet can transit before death. The 255 hop total is also the maximum "span" of

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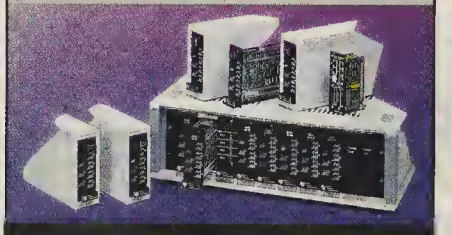
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the Internet today. If you are more than 255 hops from anywhere, you can't get there from here using the existing Internet Protocol.

When a router kills a packet, it also sends out an Internet Control Message Protocol (ICMP) error message to the packet originator address indicating TIME EXCEEDED IN TRANSIT. This message contains the IP address of the router sending the error message, as well as the address of the machine that sent the original IP packet and any of the original packet contents.

TraceRoute takes advantage of these two predictable reactions. When you enter TRACERT WWW.BOARDWATCH.COM, TraceRoute first does a DNS lookup of WWW.BOARDWATCH.COM to get the **199.33.229.18** address. It then uses the somewhat more efficient User Datagram Protocol (UDP) to create three small, typically 40 byte, packets containing the originating address, the destination address, and a time stamp of when the packets were created. It sends out three of these packets with the TTL value set to 1. These packets arrive at the first router in the path to Boardwatch, and that router immediately decrements the TTL, notes that it is now zero, and issues an ICMP TIME EXCEEDED IN TRANSIT error message back to the sending machine — including the original time stamp and the IP number of the router sending the error message. The original machine that sent out the three packets receives this ICMP error message and notes the time of receipt, as well as the IP number of the router that sent it. It then examines the time stamp information returned inside the ICMP packet. It can then calculate the difference between the time stamp information sent, and the time the ICMP packet was received. This is how it calculates the round trip transit time in milliseconds.

TraceRoute then extracts the IP number of the machine issuing the error message and does a reverse DNS lookup to retrieve the name of the machine. It prints a sequence number, in this case 1, followed by the name of the machine, the IP number of the machine, and the round trip time for each of the three test packets. The "first" machine in route is now diagrammed.

TraceRoute then increments the TTL value to 2 and sends out three more packets with new time stamps in them — again addressed to 199.33.229.18 — still the ultimate destination. The first router in the path receives the packet, decrements TTL from 2 to 1 this time, and since TTL has NOT expired, passes the packets on to the NEXT router in the path. THAT router now decrements TTL from 1 to 0, and issues the ICMP error messages back to the originating machine in the same way.

TraceRoute continues to increment TTL and send out sorties of three packets each time. Each time TTL is incremented, the packets make it to another router down the path before expiring and causing the tattletale ICMP error message that allows TraceRoute to identify the router. The TraceRoute machine will wait a fixed amount of time for a reply. If this expires, it will print a series of ASTERISKS (*) indicating that there is a machine there in the path, but it can't get it to respond with an ICMP error message within the default time. It then increments TTL again and continues.

When TTL reaches a value where the UDP datagram actually reaches the ultimate intended host, in this case **www.boardwatch.com**, that would normally be the end of the packet. But the host will be surprised to learn that the destination port number in the packet header is a ridiculously implausible port number — usually 33,434 but in any case something not ever recognized as a port. Web sites usually monitor port number 80 for example while an e-mail server will monitor port 25. Port 33,434 is not only not one of the normal ports, but is not likely to ever be. So the destination machine issues an ICMP error message as well — in this case the PORT UNREACHABLE message. Trace Route reads this as a kind of "mission accomplished" termination.

NEOTRACE - FASTER, MORE VISUAL, MORE INFORMATION

Joe Pantuso and Steve Berg were both part of the PKWare phenomenon that developed the PKZIP utility. Pantuso took a trip into game software and wound up in Singapore on an online gaming project. On his return, he teamed up with Berg to form Neoworx, Inc. a tiny programming startup.

To bring some attention to their small firm, they decided to develop a small utility program that did something useful and release it as shareware with a nominal **$15** registration in the hopes that someone would be impressed. We were.

Neotrace is a relatively small program written in Visual C++ that works exceptionally well with Windows 95 and NT. It is not overly ambitious, it's just a better and more graphical TraceRoute. It has no real installation other than it unzips itself and then you can use it. It works very well, and even in the Beta 1 release, it just doesn't crash anything or get lost.

The program provides a little console allowing you to enter a destination. It then performs the TraceRoute, and

sprays little terminals and globes over the display with links shown. Finally, it does the DNS and WhoIs lookups to add information to each node. The reverse DNS is much like conventional Trace Route. NeoTrace adds a query to the InterNIC WhoIs database to obtain the name of the organization and its mailing address, for example. You can access this information by simply putting your cursor over the icon for that node. Neotrace will pop up a display window with the WhoIs information in it.

The most noticeable improvement is speed. Conventional TraceRoutes can take a minute or more to accomplish, depending on the number of hops, etc. Neotrace starts spraying information in a couple of seconds. The main reason for this is that Neoworx has taken a multiple thread approach to TraceRoute. The program sends a flight of lots of UDP messages with different TTL values in one fell swoop and collects them as they come in. It also caches DNS and WhoIs information so if you repeat a trace or a trace that has some common elements in it to a previous trace, it goes even faster.

The graphics are cute, and better — readable. You get an instant map of the connection on screen. We've been hoping someone would figure a way to do this on top of a real geographic map. This one doesn't. The basic problem is of course the geographic information. Despite an early attempt at latitude/longitude as part of DNS and IP number assignments, it never caught on. And for large networks, you wind up with the address and zip code of the main organization — not the location of the node. So no real standard or requirement for identifying location of individual routers has ever emerged. Without it, we haven't figured out how to do a graphical overlay on a real geographic map.

But Neotrace is a step in the right direction. You don't have to drop to DOS. It can sit on the desktop. It is very fast. And it provides a reasonably visual display of the TraceRoute segment, certainly analogous to any network management program we've seen and quite similar to the WS_WATCH program — now WhatsUp. And it's fast. The download is a scant 187KB at www.neoworx.com. ◆

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ISP$ MARKET REPORT

Paul Stapleton

THE 1997 YEAR END RECAP AND A 1998 PROGNOSIS

In honor of those end of year pieces that run the week between Christmas and New Year's Eve and seem to be a journalistic requirement, here is my year-end 1997 recap and a few comments about 1998.

It was a tough year for ISP-based IPOs. Only three the entire year. EarthLink Network squeaked out in January 1997 at $13.00 per share. After trading up and down around its offering price, it has now put a few good operating quarters under its belt and trades at $17.00. In August, Concentric Network went public at $12.00 per share and now trades at $9.75 due to fewer quality performances and more competitors in its market. And finally @Home came out at $10.50 and after spiking over $30.00 has trended down toward under $20.00. @Home is priced on its future potential, not on any results we can talk about today.

Despite the shortage of 1997 IPOs, there were enough in 1996 (DIGEX, MindSpring Enterprises, OzEmail, iSTAR and Rocky Mountain Internet) and enough old timers (America Online, BBN Corp., CompuServe, PSINet and Netcom) to launch the I$P Report Index. It started at $11.83. Today it's over $19.00. The stock prices of public ISPs have come roaring back while the S&P increased by 37 percent and the DJIA increased by 33.4 percent over the same period. Steady quarter-by-quarter operational improvement, hyper growth and the acquisition premium Wall Street put on the category pushed up the price.

The economics of ISPs were severely misunderstood at the beginning of the year. Nobody's fault, not enough data. But analysts continued to noodle about what it really costs to provide Internet access. The conclusion, you can make money at $19.95 and you do not need to be facilities based.

The financials of public and private ISPs and industry segregation provided the data. I have seen the financials of dozens of private ISPs making money. The public ISPs continue to show operations trending toward positive EBITDA and earnings. Some have already done it.

Wholesale network providers offer POP access at $7.50 to $10.50 per month, per subscriber. Outsourced customer care is available for $2.00 to $3.00 and customer marketing amortized over the life of the customer can be done at another $3.00 per subscriber. That equates to a contribution margin of $3.00 per subscriber.

Of course all this is about to change (see below), and still the industry trades don't get it. On November 10, *Interactive Week* ran an article asking "Can EarthLink Soar Without its Own Network?" Do we ask if AOL can? Do we ask how many angels can dance on the head of a pin? Sure we do if we are bucking for a seat on the Inquisition, but not if we are analyzing the facts.

Merger and acquisition activity was rampant. The *I$P Report* Transaction Journal tracked over 75 merger and acquisition deals for the year. In January 1998, the *I$P Report* will run the complete list. There were dozens of small, private deals. Neighbors marrying neighbors. JavaNet bought into Connecticut. CyberGate Inc. grew within Florida.

Three firms dominated the acquisition activity. MindSpring Enterprises completed over 20 small subscriber acquisition deals. Venture-backed Verio created a business-oriented access provider through the acquisition of 20 quality regional performers while Internet Ventures Inc. landed middle-market ISPs.

Meanwhile, the leading thinkers in the telecom business, and I don't mean the RBOCs, decided the time was right to buy wholesale- and business-oriented ISPs. Five CLECs bought or merged with five major ISPs. GTE bought BBN for $616 million, TCG bought CerfNet for $65 million, Intermedia bought DIGEX for $150 million, WorldCom bought CompuServe's network for $655 million, and finally, ICG bought Netcom for $284 million. The revenue multiples for these acquisitions were all over the place from around 1.5 to 1.7 for the slower growing properties to 4.9 to 6.5 for the properties showing strong growth.

The valuation question was also tackled from a price-per-subscriber point of view. We had a three part series in *I$P Report* on this question. The three landmark deals of 1997 were MindSpring buying PSINet subscribers for $280 per head, EarthLink acquiring the subscribers of bankrupt Internet in a Mall for $40 per subscriber, and the WorldCom hand off of the CompuServe subscriber base to AOL at $85 per subscriber.

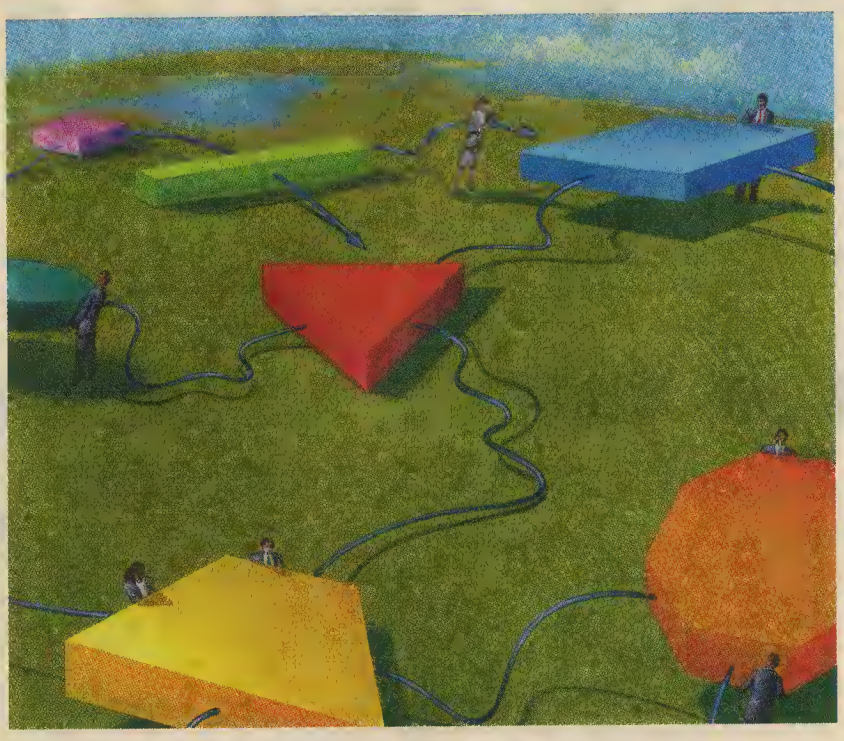
My deal of the year was the WorldCom, CompuServe, AOL three way trade. It gets an A for design, but more interesting is the $85 per subscriber AOL paid WorldCom for the CompuServe subscriber base.

Riddle me this? What two companies have access to more network cost and usage data, such as customer churn and contribution margin, than WorldCom and AOL?

After bouncing back and forth between finance, publishing and the Internet, Paul Stapleton has landed squarely in the middle. He is Managing Director of Stapleton & Associates, an Internet focused financial consulting firm. Clients include major players as well as start ups and middle market companies in media, telecomm and software.

Paul Stapleton is also editor of *ISP Report* (to subscribe, **e-mail ispreport @mediabiz.com** or call **303-271-9960** or fax 303-271-9965; annual rate is $195; sample issue sent on request) the newsletter of record for financial activity in the ISP industry. Paul welcomes comments and suggestions at **paulstapes @aol.com**. He lives in Boulder, CO with his lovely new bride.

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Symbol	Exchange	Company	Price 9/10/97	Price 10/7/97	Price 11/4/97	Price 11/18/97	Percent Change	Shares (millions)	Market Capitalization
ATHM	NASD	@Home	$19.14	$28.00	$24.13	$20.25	-16.06%	117.52	$3,290.59
AOL	NYSE	America Online Inc.	76.31	79.63	78.81	74.00	-6.11%	95.86	7,632.69
CSRV	NASD	CompuServe Corp.	13.94	13.44	12.81	12.75	-0.49%	92.60	1,244.54
CNCX	NASD	Concentric Network Corp.	14.63	12.75	11.00	10.63	-3.41%	13.51	172.19
ELNK	NASD	EarthLink NetworkInc.	15.50	17.25	17.18	16.50	-3.97%	9.68	166.91
IDTC	NASD	IDT Corporation	15.50	17.94	17.50	24.50	40.00%	9.89	177.43
WWW	TSE	iSTAR internet inc.	1.20	1.13	0.93	0.62	-32.70%	24.43	27.60
MCOM	OTC	Metricom Inc.	5.50	12.88	13.50	12.03	-10.88%	13.61	175.19
MSPG	NASD	MindSpring EnterprisesInc.	17.13	23.38	28.00	28.63	2.23%	7.48	174.77
NETC	NASD	Netcom	13.06	13.75	19.63	18.81	-4.14%	11.68	160.64
OZEMY	NASD	OzEmail Ltd.	15.75	13.50	13.13	9.88	-24.76%	10.20	137.70
PSIX	NASD	PSINet Inc.	8.69	7.88	8.13	6.75	-16.92%	40.27	317.16
RMII	NASD	Rocky Mountain InternetInc.	2.13	3.00	2.75	2.81	2.27%	4.65	13.95
		I$P Report index	**$16.81**	**$18.81**	**$19.04**	**$18.32**			**$13,691.37**

Now do a discounted cash flow with the following assumptions, a margin of $3.00 per subscriber, the customer subscribes for an average of three years, and the discount rate is 15 percent. The present value of the DCF with those assumptions is $86.54. Coincidence?

For others the WorldCom/MCI merger was the was the deal of the year. In my opinion, it will turn out to be the non event of the year. No leverage, no economies, no improved performance. After a while, these deals stop being about such things and become about ego.

What's the prognosis for 1998? I'm not a forecaster, but I will venture a few guesses.

My mantra for 1998 is traffic, traffic, traffic. The ISPs that will flourish will be those that have traffic and are looking for network capacity to put it on. The ISPs that now feel comfortable because they "have facilities" will beg for traffic and lower their prices to get it.

Fortunately, new technology means you can lower your price and still remain profitable. Wholesale network access will be available for $5.00 to $6.00 per subscriber, per month. It remains to be seen what impact that will have on the $19.95 per subscriber price model. Can you gain market share with a price of $17.95? Should you try?

The way to get traffic is to be a good marketer and serve the customer. That means, on the national landscape, consumer ISPs will start to act more like search engines and wholesale ISPs will start to act more like CLECs. Regionally, there will be IP networks serving both, emphasizing regional flavor and SOHO services.

Think about it. As a consumer ISP, the next step is to leverage the customer base and sell advertising and products. Who else wants to sell advertising? They are your future competitors.

In the other piece of the value chain, data oriented CLECs and ISPs will become indistinguishable. The newer breed of CLECs are focusing on data transmission over TCP/IP while passing the central office and using the Telecom Act of 1996 to get a tariff reduction from the telcos. Those guys sound like ISPs to me with one exception. They have proficiency dealing with the FCC and state regulators. In 1998, so will the successful ISP, CLEC, or whatever we decide to call them.

New industry entrants will include Cable MSOs (multiple system operators). They are realizing they need to be in the business, but are no longer waiting for the miracles of high bandwidth, @Home not withstanding. They need to learn something about brand management, customer service and the IP network today. ISPs know about these areas. They understand subscriber business models and have access to capital. They will buy in. So will more telcos and the newly deregulated utilities. Several financiers will allocate assets to an ISP play. Why? The high risk is behind the industry. Private equity funds across all industries are chasing too few good deals.

Where will the *I$P Report* Index go? I have no idea. Over the long term, it should mirror the success or failure of ISPs. In short, it will take care of itself, if ISPs take care of business.◆

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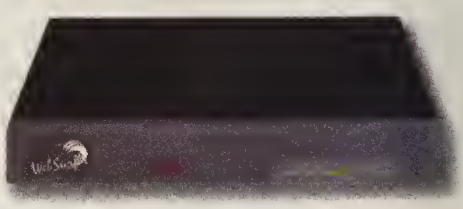
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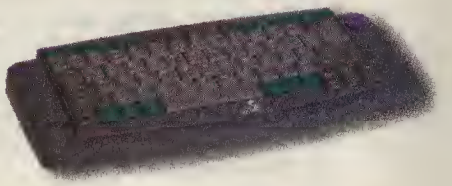
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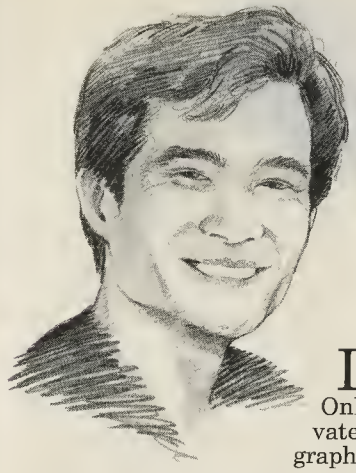
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BIG BOARD BRIEFS by Wallace Wang

AOL MAY INTRODUCE ADS IN PRIVATE E-MAIL

In another desperate attempt to raise revenue, the German unit of America Online plans including advertising in private electronic mail. The ads will appear as graphics whenever members read their e-mail.

America Online claims that 40 percent of its customers use the service mostly for sending and receiving e-mail and sees this opportunity as a lucrative venue for online advertisers. AOL estimates that nearly 16 percent of its **$2 billion** revenue comes from online advertising.

So how will members react when they find ads popping up whenever they try to use AOL? Prodigy tried that tactic nearly a decade ago in the age of slower modems and clumsier graphics — and got hammered by critics as a result. With faster modems and graphics, perhaps online advertising won't be as annoying as television commercials. Unlike television commercials, you can always avoid looking at online ads if you don't want them.

COMPUSERVE CONVERTING TO THE WEB

After watching Prodigy successfully make the transition from a stodgy, proprietary online service to an Internet-based online service, CompuServe has finally bowed to the inevitable and will convert its service to the World Wide Web as well. This comes after CompuServe spent a bundle of money developing its slick new CompuServe 4.0 user interface that it will have to dump eventually anyway.

To publicize its gradual transition, CompuServe has developed a web site at `www.browserwars.com` where users can get a sneak peek at what to expect after CompuServe makes its conversion.

Of course, much of CompuServe's publicity thunder is already three years too late. Rather than waste time fixing bugs in its CompuServe 4.0 user interface, it should focus on moving the entire service to the World Wide Web as quickly as possible. Then again, CompuServe was never very good at reacting to the market, which explains why it's slowly sinking into oblivion.

AMERICA ONLINE AND COMPUSERVE TO MERGE OR NOT?

Claiming "flagrant" antitrust violations, a unit of Rupert Murdoch's News Corp. media conglomerate has sued America Online to block its acquisition of CompuServe's member base. The complaint in U.S. District Court for the Eastern District of Virginia alleges AOL violated unfair-competition laws and seeking to "enjoin AOL from abusing its monopoly power."

Online games may be at the center of the dispute since News Corp.'s Kesmai Corp. unit offers games on AOL, CompuServe and Prodigy. The lawsuit also claims that AOL "engaged in a course of conduct designed to defraud and destroy Kesmai when the online service launched its own multiplayer gaming service dubbed WorldPlay."

WorldPlay will contain both Kesmai's games and America Online's independently created games. Kesmai claims this arrangement means its game service now is controlled by a competitor and is given far less promotion. The suit says usage of Kesmai's games has plummeted by as much as 92 percent and the "damage is severe and irreparable."

Naturally, this lawsuit comes in the wake of the U.S. Justice Department investigation of AOL's planned acquisition of CompuServe's membership. Already members have been defecting from CompuServe in hordes, and that massive leak in membership isn't likely to stop any time soon. By the time AOL formally acquires CompuServe, there might not be much left but a skeleton crew and a useless online service.

PRODIGY DEBUTS "PRODIGY DAILY" CONTENT CHANNEL

Falling in line with the Microsoft juggernaut, Prodigy has made the Microsoft Internet Explorer 4.0 its default browser and announced the debut of Prodigy Daily, the company's first service built using Microsoft Active Channel push technology. Prodigy Daily can be automatically installed on the Windows 95 Active Desktop from Prodigy Internet installation CDs. Non-Prodigy members with an Internet connection and Internet Explorer 4.0 can also subscribe to Prodigy Daily by downloading its necessary components from Prodigy's web site (`www.prodigy.com/home.html`).

Prodigy Daily will be programmed every day and will feature selected content from Prodigy Internet. Initial services include highlights of sites and events across the service; daily feat-ure stories provided by Prodigy's community moderators; and special deals and promotions from the Prodigy Shopping Network.

AOL SUES X-RATED SPAMMER

America Online has filed a lawsuit against a Las Vegas-based company called Over the Air Equipment. AOL claims that Over the Air Equipment sent adult-oriented, unsolicited commercial e-mail to AOL members despite repeated requests to stop the unwanted messages, including the falsifying e-mail transmission data to avoid AOL's mail controls.

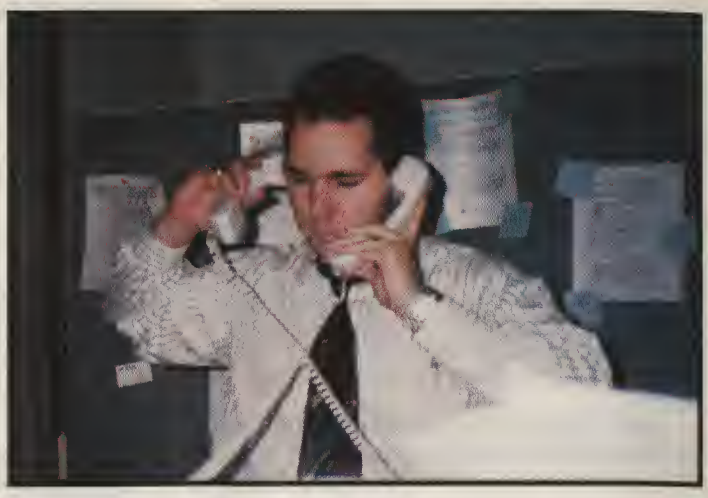
Over the Air Equipment allegedly sent AOL members e-mail that included a link to its adult-oriented web sites. "Today we're saying to junk e-mailers 'You will finally have to take responsibility for your deceptions, your trickery and your counterfeiting,'" said George Vradenburg, AOL's senior vice president. "We're committed to providing our members with a positive online experience as free as possible from unwanted junk e-mail that clogs our members'

Wallace Wang is the author of ***CompuServe For Dummies, Visual Basic For Dummies, More Visual Basic For Dummies, Microsoft Office 97 For Dummies,*** *and* ***More Microsoft Office 97 For Dummies.***

When not working with computers, he performs stand-up comedy and has appeared on A&E's *Evening at the Improv* TV comedy show. He can be reached via e-mail at `70334.3672@compuserve.com`, `bothekat@aol.com`, `bo_the_cat@msn.com`, or `bothecat@prodigy.net`

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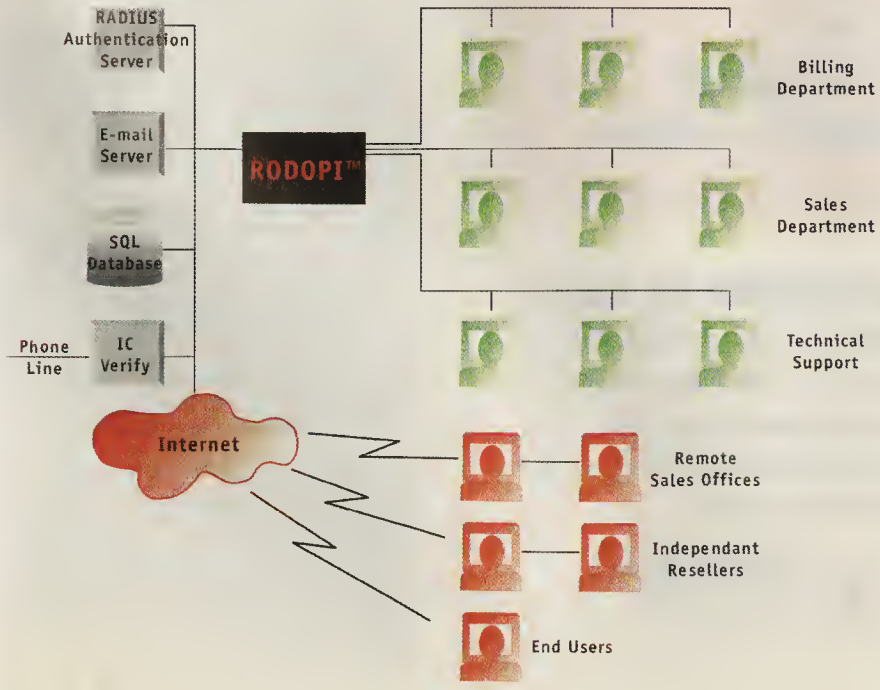


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AOL TEAMS UP WITH AMERICAN GREETINGS

America Online's Internet online service division, AOL Networks, has teamed up with American Greetings to develop an online electronic greetings business. In exchange for a three-year, multi-million dollar agreement with a **$3 million** advance payment to AOL, Cleveland-based American Greetings will create thousands of electronic postcards which can be sent from computer to computer via e-mail.

The animated and interactive greeting cards will include greetings for every occasion or holiday with designs featuring a wide variety of popular, licensed characters. Members will be able to buy, send, and receive the electronic greeting cards from appropriate areas integrated throughout AOL.

American Greetings' online electronic greeting store will also be an anchor tenant in AOL's new shopping channel. Plans include bundling AOL's startup software into the line of American Greeting's CreataCard software for home use. In turn, AOL will bundle a special edition of the CreataCard software into its promotional startup program.

WILL MICROSOFT SELL THE MICROSOFT NETWORK?

Despite rumors, Microsoft claims it has no plans to sell its Microsoft Network online service. "Microsoft remains committed to MSN," Marty Taucher, a Microsoft spokesman said. "It is of strategic importance to the company."

Publicly, Microsoft claims it is satisfied with the growth of MSN, which has attracted nearly 2.3 million subscribers. Privately, Microsoft is embarrassed by MSN's poor content, cumbersome installation program, and general lack of interest among the entire computer community.

Microsoft supposedly turned down an offer to buy CompuServe and planned to sell MSN for approximately **$1 billion** to America Online or @Home Corp., an Internet service provider. However, Microsoft insists that it will continue developing MSN until it can figure out how to make the online service survive and thrive against the growing competition of America Online and the Internet.

In a separate effort to support the Microsoft Network, Microsoft has agreed to make Yahoo! its exclusive third-party provider of Internet directory services. Yahoo!'s directory will complement the current search and directory services on the Microsoft online service. In addition, Yahoo! will distribute news from MSNBC, and automotive and car-buying information from the Microsoft CarPoint online automotive service.

AMERICA ONLINE TO OFFER INSTANT MESSAGING SERVICE

America Online has teamed up with Netscape to launch an instant messaging product to be called Netscape's AOL Instant Messenger. The program allows Internet users to send instant messages to each other regardless of online provider or Internet service. Current AOL members already have this service, but it's limited only to AOL members, not to others connecting to the Internet through CompuServe, Prodigy, or individual Internet service providers.

Using the Instant Messenger, you can keep track of people other than AOL members, which could be perfect for harassing people you don't like or stalking people you really do like.

COMPUSERVE TARGETS CORPORATE MARKET

To attract corporate users (who usually pay too much for everything anyway), CompuServe is offering a new service dubbed "C from CompuServe," which combines CompuServe's forums in new ways to appeal to Internet-savvy business users.

The goal is to simplify both CompuServe and the Internet specifically for business users who don't want to wade through useless web sites or CompuServe forums to find what they're looking for. C for CompuServe will offer three payment levels:

The Guest level provides free, read-only access to CompuServe's 500 forums to all web users. Guest-level users also will have access to forums' reciprocal links to thousands of web sites selected for their relevance to the forums' topics.

The Member level will operate on a pay-per-transaction basis to provide access to hundreds of research databases. Users must enter their credit-card information online once and are charged small amounts for functions they perform.

The Subscriber level will offer three options. One will feature full interactive access to forums, including posting and receiving messages, and will cost less than **$10** per month. The other two options, which will each be priced quite a bit lower, are a subscription to integrated e-mail, voice mail, fax, and pager services and a subscription, to Computing Pro, a value-added service for computing professionals.

Can CompuServe succeed in simplifying the Internet for business users, yet providing enough information to justify the additional expense? Given CompuServe's previous track record in doing anything innovative (remember WOW!?), chances are good this plan will die a premature death as well.◆

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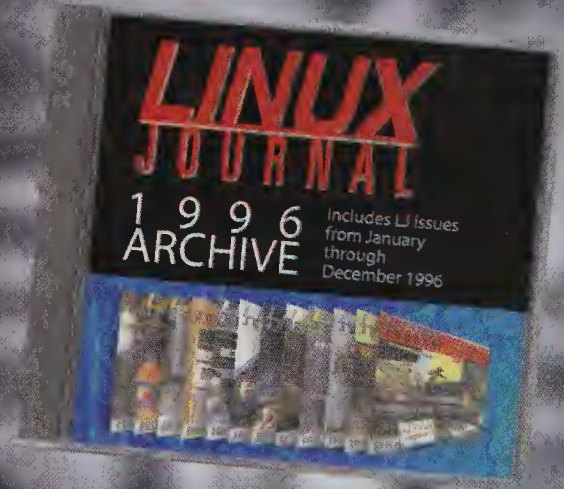
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BONDED ANALOG MODEMS
More Bandwidth Using Standard Analog Lines

by Steve Clark

One of the last things you'll ever hear from an Internet user is, "My modem is just too fast, I wish I could slow it down." In a perfect world, every home would have an inexpensive ISDN, ADSL or other high-speed Internet connection.

The telephone interface makes sense to us because we're used to it. Most of us started plugging modems into our phone lines a few years back so we could transfer data at 300 bits per second. Those rates increased until they began to taper off around 33,600 bits per second. Despite the efforts of x2 and K56flex to deliver 56 Kbps over dial tone lines, we all know that the end is near.

But if we know that we can reliably get 33.6 Kbps over one phone line, then it makes sense that we can get 67.2 Kbps over two lines, or 100.8 Kbps over three. Although it does make sense, it's not really that easy. It can be done, it has been done, and, before all is said and done, it will be done many times again. There are two ways to do it. One is with software and the other is with hardware. The several multiple modem packages that are available today use one or the other.

WHY NOT ISDN?

In some areas, ISDN is available for as low as $30 per month, which is the price of two dial tone lines. In these areas, ISDN is a bargain, but often it is metered. The first 20 or so hours may be free, then there's a per minute, per channel charge afterward. For the rest of the country, ISDN is about $70 per loop. ISDN is also unfamiliar. For most people, it's too much to grasp. Everyone from Ma Bell on down knows dial tone . . . all too well.

BONDING

The idea of combining two analog modems into a single channel is based on ISDN practices. The two 64 Kbps Bearer, or "B", channels are combined to create a 128 Kbps pipe. The process by which the ISDN channels are combined is called BONDING. It is an industry standard that allows the ISDN terminal adapters to bond together each other's B channels. This allows a Motorola ISDN TA to connect to an Adtran TA, for example. BONDING stands for the Bandwidth ON Demand INteroperability Group, a governing body that sets the standards for the protocol. So when we talk about "bonding" modem connections, it can be confusing because of the acronym that applies only to ISDN.

But the methods by which modems are combined are similar to BONDING. The objective is to take multiple streams of data and combine them into a single session. In the modem world, this is mostly accomplished by Multilink PPP, a software standard that combines multiple physical connections into a single IP session. There are different flavors of Multilink PPP (see below), but the bottom line is that protocol must be running on both the client and server ends to combine the modem ports.

The client software can be Microsoft's Dial Up Networking or Diamond Multimedia's Shotgun. Both take the connections of two PC communications ports and combines them into one IP session for the operating system.

MULTILINK PPP

MultiLink PPP has become an industry standard for connecting multiple modem calls across a remote access server. ISPs that support ISDN have some sort of Multilink PPP capabilities. Of course, different implementations of the protocol have been implemented. For example, Cisco, in its IOS 11.2, introduced its Multichassis Multilink PPP, which distributes Multilink PPP sessions over more than one chassis. Ascend's Multichannel Protocol Plus adds extensions to MulTiLink PPP which can span modem racks and access billing systems. It can also add channels dynamically for incoming calls, meaning that it can recognize an end-user that has call waiting. If the user answers an incoming call while online, the modem hangs up, but the remote access server needs to note the available port. The user, now done with the incoming call, can connect with the second modem to the next available port. The server needs to tie that new connection to the user's other connection. Multichannel Protocol Plus allows that to happen. Mulitilink PPP is common in most new dial-up servers, and vendors like Microcom and Shiva are always upgrading their servers' operating systems.

Multilink PPP is not just two separate modem calls. It actually turns the two calls into one IP session. Two 28.8 modem calls become one 57.6 Kbps pipe. This must occur at both the client and server end. Most dial-up servers, Dial Up Networking 1.2 and Shotgun all support Multilink PPP or some version of it.

THE ISP PERSPECTIVE

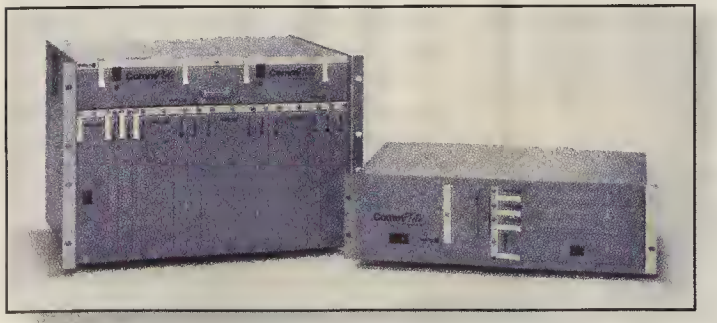
ISPs wishing to set up the dual-56K connections must do so the same way they would set up single connections. This means they need to establish a digital connection (T-1 or Primary Rate ISDN) from their telco's central office to their modem racks.

There have also been problems with calls that span racks. Some versions of Multilink PPP have not worked if the first call connects to one chassis and the second terminates at another chassis. ISPs should make sure that the Multilink PPP used in their particular servers can work around, or avert this problem. Likewise, vendors should assure that their Multilink PPP code makes this a non-issue.

How should ISPs charge for dual-modem service? Some published reports and informal surveys have found that ISPs are leaning toward charging half price for additional connections. So, a $20 service for single line use would become $30 per month for dual-modem users. As port density rises and price per port falls, this makes sense, unless you believe that ISPs can't make money at $19.95.

MULTITECH SERVER SIDE APPLICATION

RASExpress v5.20, MultiTech's new operating system for its CommPlete line of remote access servers, can join together as many as five dial-up lines into a single channel. ISPs with MultiTech equipment can offer dual-line access to their customers who have two modems, two modem ports and two telephone lines. Any CommPlete rack that can run RASExpress v5 can also run v5.20, and the upgrade is **free** from MultiTech (`www.multitech.com`).



MultiTech's CommPlete remote access servers

The end user can't just be anyone with two modems, however. Microsoft's Dial Up Networking version 2.1 software is also necessary to connect the two sessions on the client end. The beauty of this system is that end users can have any combination of modems on the other end. They don't need to be MultiTech modems, although two MultiTech K56flex modems on the user end can yield a connection of 92 Kbps. Although there is some overhead involved in combining the two connections, MultiTech conservatively assures that a properly configured dual 56K connection will perform at 92 Kbps in the real world.

TRANSEND TWO-IN-ONE MODEM SYSTEM

Transend Corporation (`www.transendmodems.com`) offers a full-duplex 67.2 Kbps modem. It works by combining two 33.6 modem connections over two phone lines. The Transend Sixty Seven is unique because it uses 33.6 rather than 56 Kbps modems. Although slower, these modems have been proven to work well. The 56K modems are asymmetrical, offering 33.6 Kbps upstream and averaging somewhere in the mid forties toward the user.



The Transend 67 dual 33.6 modem

For this system to work, both end user and ISP must have a Transend Sixty Seven on each end of the connection. The customer uses a **$599** Transend Sixty Seven and the ISP uses a **$569** Transend Sixty Seven Central Site modem. Both boxes look identical, but each has special feature for its own end of the connection. The Central Site Modem has a lower list price because it's meant to be a utility unit of the consumer model. It doesn't come with fax software, consumer documentation or fancy packaging. There is no special equipment for the ISP except an **$849**, 10-space rack for multiple Sixty Sevens. An ISP may buy one of these when it acquires more Transend customers. The beauty of this rack is that it is made by Transend for its modems. No new cards are required because the ISP can plug its free-standing modems into the backplane of the rack.

Each line of the Transend Sixty Seven backs up the other. Should one line go down, data is automatically funneled to the other line. In the meantime, the down modem will reconnect itself. Once connected, data will begin to flow to it again. It also recognizes call waiting. If both telephone lines are being used to browse the Net and a call comes in, the Transend automatically drops the line of the incoming call. All of the phones connected to that line will then ring. There is also a bypass button on the modem that allows the user to manually drop one line if it is needed to place an outgoing call.

Transend does not use Multilink PPP, because the modems connect the two channels through hardware. ML PPP uses two ports, two address, two logins and authentications. The Transend Sixty Seven is a single modem that uses one serial port. The two modems are combined on the chip level, using a proprietary technology called Simple Analog Channel Sequencing (SACS). SACS splits the data stream after smaller chunks of the data have been compressed into a single long stream. Multilink PPP takes small chunks of data, splits them, then and sends them. The protocol must work harder to deliver the same amount of data.

Because Transend doesn't use 56K chips, no special T-1 or PRI lines are necessary for the ISP. The ISP can simply buy two dial tone lines and plug them into the Transend Sixty Seven Central Site.

Transend has so much confidence in its modem that it placed a speedometer on the front panel. It's simply a meter that tells the end user the speed of the current connection both upstream and downstream. The company has also released an internal, ISA version of the modem that lists for **$399**.

DIAMOND SUPRASONIC

Diamond Multimedia (`www.diamondmm.com`), makers of the Supra modems, will ship its SupraSonic II modems at the beginning of 1998. These units use two Rockwell programmable 56K modem chips that must connect to a server using Ascend's Multichannel Plus protocol, which is in every Ascend product released since 1993. Diamond says that Multichannel Plus is a component, but it's not necessary. As other Multilink PPP applications emerge, the Diamond product line will expand to accommodate more than just the Ascend flavor.

The SupraSonic II features Diamond's Shotgun technology, which will be incorporated into future Diamond releases. Among other things, Shotgun features voice priority. Instead of disabling call waiting, user is alerted if there's an incoming call while online. The modem connection can be dropped and the user can answer the phone. If the user has a SupraSonic II, the second connection can stay up while the phone call is answered. This way, a new IP session doesn't need to be started after a phone call.

Diamond's Shotgun technology will also be used for its single line modems. With it, end users combine their Diamond modems with any other modem, regardless of speed or chip set, for a faster connection.

The Supra modems are bound together by Diamond's Shotgun software, which is basically a Multichannel Protocol Plus client to compliment the Ascend server to which it must connect. The SupraSonic II, which uses Shotgun, is an ISA card that occupies two COM ports.

SMALL OFFICE CONNECTIONS

The WebRamp M3, by Ramp Networks (**www.rampnet.com**) has been very popular at retail. It's a consumer/small office device with three communication ports and four Ethernet ports. Its three user-supplied modems can be shared by four users on a small network, or if more users are added to the network, an extra Ethernet hub can be cross-connected to the WebRamp.

The WebRamp can mix and match any type or speed of modem. You could attach a 14.4, 28.8 and a 56K to it and it wouldn't know the difference. Each modem could even connect to three different ISPs. The big difference between the WebRamp and the other multimodem products is that it does *not* combine the aggregate bandwidth into one large pipe. It may appear to perform faster for web browsing because of the nature of HTTP. When a user hits a web server, multiple IP sessions may be spawned. One may send the HTML code, while several others send the images, Java applets and so forth. The WebRamp receives three streams of data and sends them back to the end user, who thinks that it's really fast. This won't be the case, however, if two other users on the network are downloading huge files via FTP. Each FTP session will hog a modem connection until it is done. This means that three 56K links will not create a 168 Kbps pipe for FTP sessions.

ISPs don't need to be concerned about their customers using WebRamps. These connections look like any other dial-up user. But if three calls come in at the same time, using the same login name and password, then there's a good chance that somebody's got a WebRamp.

The WebRamp's price is perhaps its best feature. It retails for about **$300**, less than half the price of the 3Com and MultiTech products. However, it does not have built-in modems, only modem ports, nor does it combine its modems' bandwidth. Since devices like this are designed to displace the army of unemployed modems sitting in corporate closets, the WebRamp at least gives those surplus modems new life.

With a list price of **$745**, 3Com (**www.3com.com**) announced a similar device to the M3 called the OfficeConnect Remote Dual Analog Router. Like the M3, it's meant for small offices, but uses two built-in 56 Kbps analog modems. If the connection to the ISP is absolutely perfect, the OfficeConnect can reach speeds of 112 Kbps. Typically, x2 connections average in the mid-40s, so, in reality, one of these devices can connect a small office at about 90 Kbps. Of course, it uses x2 chips, which are Texas Instrument's DSPs. These chips are programmable, so if there is ever a 56K standard, the OfficeConnect Remote Dual Analog can be upgraded.

The OfficeConnect Remote Dual Analog can be configured with an HTML browser or through a Windows-based setup program. It also supports IPX routing, for those old Novell networks.

Using the same technology as its consumer modems, MultiTech also has its Proxy Server for small offices. It has three built-in K56flex modems, which are bound together into a single pipe, and uses a single Ethernet port to connect to a network hub. The Proxy Server acts as a firewall because it allows no inbound traffic without a corresponding outbound request. It carries a list price of **$1,399** and will probably retail for about **$900**.

Like the OfficeConnect, the MultiTech Proxy Server also uses programmable chips; however, its chips are made by Lucent.

SOFTWARE APPLICATIONS

MidPoint, from MidCore Software (**www.midcore.com**), is a software application that pools together as many as four modems on a local area network and allows users to share the bandwidth. This application should work best for offices in commercial zones where four phone lines are available. For small offices, or workgroups of five or less, MidCore offers the MidPoint Companion for **$119**. Larger offices need to use the MidPoint Gateway for **$299**.

This software package is essentially a "poor man's multihoming application." Multihoming is a complex procedure that occurs at the router level using Border Gateway Protocol (BGP). Small offices and home offices don't always need routers. Their administrators, in addition to some other full-time position in the office, are often some designated person who enjoys playing with computers. Few are advanced enough to understand BGP and load balancing. MidPoint fills that need.

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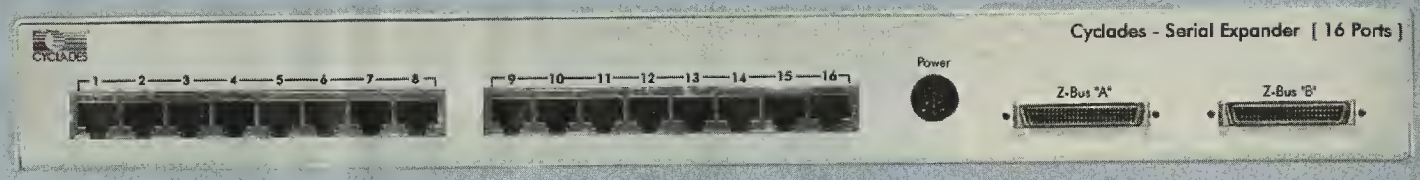


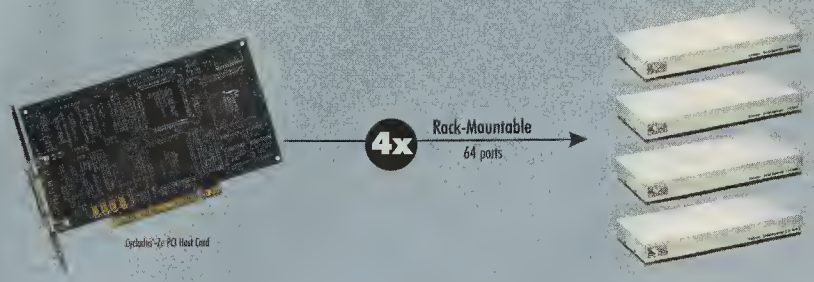
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Processor	Full-blown 32-bit RISC processor (MIPS R3000)	Small 8-bit RISC/ASIC Engine	None
FIFO Size	Default: 8 KBytes per channel, configurable (1 MBytes DRAM on-board)	Ranges from a few bytes to about 1 KBytes.	16 bytes for the 16550
Bus Interface/ Data Transfers	True 32-bit PCI Master/Slave	8-bit ISA/8-bit PCI slave	8-bit ISA
Maximum nominal baud rate	921.6 kbps	Ranges from 115.2 - 460.8 kbps	up to 115.2 kbps

Driver Support: NT, Linux, and FreeBSD in both Intel and Alpha platforms. Call for other available drivers. OEM inquiries welcome.

In serial communications, performance is the combination of high throughput and low CPU overhead.

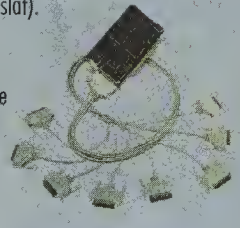
The Cyclades®-Z on-board CPU handles all the communication tasks and transfers data to the host in the most efficient way, using 32-bit PCI master interface and 8 KBytes FIFOs per channel.

The Cyclades-Z is plug-and-play compatible and the firmware is 100% downloadable. This allows future software upgrades without hardware changes. Surge protection is also standard in all the lines.

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*Call for details. Promotion running until March 1998.

Technical specifications subject to change without notice.

This program, unlike the other modem pooling applications, is not limited to modems. It can be used to combine the bandwidth of ISDN terminal adapters and 56 Kbps CSUs.

Microsoft's Dial Up Networking (DUN) 1.2 is the necessary application for end user Mulitilink PPP sessions. It can be downloaded from **www.microsoft.com/communications/exes/msdun12.exe**. The version of DUN that ships with Windows 95 does not support Multilink PPP. Because Multilink PPP is necessary on both ends of the connection to enable modem teaming, end users need to use version 1.2 (or greater, in the future).

CONCLUSION

Bandwidth is in demand and dial tone is quick and easy to get. In most parts, on most days, you can call your phone company and tell them you need a second or third line, and in a day or two it's wired to your home or office. That can't be done with ISDN or ADSL. Besides, end users understand dial tone. We know that by picking up the phone, a near sine wave tone in the ear piece tells us that the line is clear to place a call.

End users who are comfortable with configuring software clients may want to try Microsoft's Dial Up Networking or Diamond's Shotgun. Their ISPs, however, need to support the same flavor of Multilink PPP. If the user has no spare communication ports, then the Transend product is most applicable because it uses one port, just like a standard modem. ◆

MultiTech RAS Express 5.20
Application:
Server side application that combines any two modem connections. End user must have Microsoft's Dial Up Networking software.
List Price:
Free upgrade for ISPs using RAS Express 5.0

MultiTech Proxy Server
Application:
Small office dial-up proxy server and firewall that joins three K56flex modems.
List Price:
$1,399

Vendor Info:
MultiTech Systems
2205 Woodale Drive
Mounds View, MN 55112
(800) 328-9717
www.multitech.com

Transend Sixty Seven
Application:
Dual 33.6 Kbps modems bound together in a single unit. Requires the another Transend modem on the ISP end. Offers 67.2 Kbps, two-way traffic.
List Price:
$599

Transend Sixty Seven Internal
Application:
Internal version of the Transend 67.
List Price:
$399

Transend Sixty Seven Central Site
Application:
Transend 67 modem for ISPs with less consumer software and documentation.
List Price:
$569

CardCage
Application:
A 10-space rack for multiple Central Site modems. Includes power supply.
List Price:
$849

Vendor Info:
Transend Corporation
1240 U. S. 1
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(800) 357-2671
www.transendmodems.com

SupraSonic II
Application:
Dual K56flex modems in a single unit. Requires ISP to use Ascend's Multichannel Plus protocol.
Estimated List Price:
$199

Shotgun
Application:
Protocol within Diamond modems that allows for the local combination of IP connections and detection of incoming calls while on line.
List Price:
Bundled with products

Vendor Info:
Diamond Multimedia
San Jose, California
(408) 325-7000 (Reseller Sales Support)
www.diamondmm.com

WebRamp M3
Application:
Small office router with three modem and four Ethernet ports. Modems must be provided by user.
List Price:
$299

Vendor Info:
Ramp Networks
3180 De La Cruz Blvd., Suite 200
Santa Clara, CA 95054
(888) Ramp-Net, or
www.rampnet.com

OfficeConnect Remote Dual Analog Router
Application:
Small office router with two built-in x2 modems. Joins connections for access speeds up to 112 Kbps.
List Price:
$745

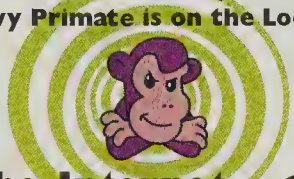
Vendor Info:
3Com
5400 Bayfront Plaza
Santa Clara, CA 95052
(800) 342-5877
www.3com.com

MidPoint Companion
Application:
Software program for Windows 95 and NT that combines four modem connections for use across a local area network. Can use connections from any modem or connection up to 128 Kbps ISDN. Supports up to five users.
List Price:
$119

MidPoint Gateway
Application:
Software program for Windows 95 and NT that combines four modem connections for use across a local area network. Can use connections from any modem or connection up to 128 Kbps ISDN. Supports five or more users.
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Vendor Info:
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Dancing Elephants:

WorldCom, MCI, GTE, Genuity, Qwest, in an Internet Mating Ritual



by Bill McCarthy

In a frenzied season of telcos shopping for each other, MCI Communications Corp. agreed November 10 to be acquired by WorldCom, Inc., after the telco that appears determined to buy *the Internet* sweetened its bid for MCI to **$37 billion** in stock and cash. If completed, the deal would be the largest corporate merger in history, creating a company that will control about 50 to 60 percent to Internet traffic.

But that was just the priciest of three deals important for the Internet and the communications industry in general. While WorldCom shopped at Sachs, GTE Corp. and PSINet hit the thrift stores, picking up Genuity to add to GTE Internetworking and iStar Internet to make PSINet the largest ISP in Canada.

The mergers show that communications companies are trying to build on their perceived strengths. For WorldCom it is a wide range of infrastructure, especially local networks to go along with the huge national and global structure. For GTE Internetworking it's the World Wide Web as it grabbed Genuity, and for PSINet it's the ISP market as it reached north for iStar.

MCI WorldCom will be the number two U.S. long-distance company behind AT&T. It will also be the largest competitive local exchange carrier (CLEC), the companies said. MCI WorldCom will provide a complete range of local, long distance, Internet and international communications services, but one of the attractions for WorldCom is said to be MCI's building of local fiber networks in more than two dozen cities. AT&T and No. 3 Sprint are said to be looking at leasing lines from local telephone companies for resale in competitive local markets. WorldCom's interest in developing its local network infrastructure to go along with its national and international backbones has been born out in its **$2.4 billion** acquisition this October of Brooks Fiber Properties, Inc., a leading developer of local fiber optic networks and provider of local telco services with third quarter revenue of **$35.9 million**.

MCI's board unanimously voted to accept WorldCom's deal on a Sunday night, November 9, after WorldCom raised its offer by about 20 percent. Barring unexpected glitches from federal, state or European authorities, the deal ends a game of poker between several companies vying for the nation's second-largest telecommunications company.

Although the merger will take six to nine months to garner regulator approvals, Bernard J. Ebbers, president and chief executive officer of WorldCom, said there are "no issues that we can anticipate in even the worst circumstances that will derail this transaction."

GTE MOVES ON

The deal topped a competing **$28 billion** cash bid made by GTE Corp. But GTE moved on, announcing on November 13 that it acquired Genuity, another Internet backbone operator, from Bechtel Enterprises, in a purchase with secret details. But it is also a deal that sharpens GTE Internetworking's focus on the World Wide Web, a thriving segment of the market it inherited when it purchased BBN Planet.

Although spurned by MCI, the November announcements do not mean that GTE is completely out of the running for MCI, even if no one wants to talk about it. GTE spokesman Vaughn Harring said, "We don't have anything to publicly say about WorldCom." Mark Shull, vice president and general manager of GTE Internetworking's Network Centric Solutions group, told a reporter in a news conference that GTE representatives "cannot fully answer your question concerning MCI and all of that." The WordCom deal with MCI is still pending and GTE's offer is still viable. "GTE has a very aggressive position in the Internet space," he said, and that will continue, whether it is by pursuing MCI or other communications companies.

And GTE has been aggressive in acquiring infrastructure. In May, GTE Corp. agreed to pay **$616 million** in cash to acquire BBN Corp., one of the nation's biggest Internet service companies. The BBN purchase was one of three deals in a week signaling that GTE, the nation's largest local telephone company, intended to become a major player in voice, data and video. GTE also put together a **$485 million** agreement to buy 25 percent of a national fiber-optic network being built by Qwest Communications Corp. During the same week, GTE said it formed an alliance with Cisco Systems, the maker of data networking equipment. The company said it plans to develop new products and services and buy as much as **$1 billion** in products from Cisco over the next five years. While the Genuity purchase signals further commitment by GTE to be a player in wide array of communications market, it is most significant for augmenting GTE Internetworking's ability to offer web services.

The Genuity purchase increases GTE Internetworking's data centers from five to 12, and gives the company, which already has thousands of hosting and collocation customers including some of the biggest e-commerce companies on the Net, room to expand. Shull and Genuity President T. Geir Ramleth said that the data centers, Genuity's Hopscotch technology, and its 180 or so employees already working in the market made Genuity an attractive purchase. Ramleth said, "GTE clearly recognized the value we have built and where we are in the market place."

Hopscotch technology, developed by Genuity's senior architect engineer Rodney Joffe, uses hardware and software to route traffic to the least busy replicated web server by the best available path. The end-user enters a single URL to request the site, Hopscotch analyzes server usage, the network path and traffic patterns. The patent-pending technology uses an algorithm to determine the optimum path and server, which may not be physically closest to the user.

Shull said the companies have "a shared vision" to offer the "most advanced" hosting and collocation services in key markets. They have approached it with similar strategies in terms of architecture with deployment of data centers at the edges of the network.

From Genuity's perspective, the deal represents an opportunity to take advantage of peering and performance developed by one of the pioneers in Internet development, BBN Corp., the developer of Internet-precursor ARPANET. For Genuity it is also an opportunity to "get together with a facilities-based telco (GTE) that sees the importance of investing in the infrastructure and technology," Remuleth said.

Rumors had been floating for weeks that Bechtel was shopping Genuity among telcos and ISPs for **$80 million** to **$100 million**. No one would confirm the price, however. The story was that Bechtel had overbuilt the Genuity network by creating the seven data centers at a cost of about **$1 million** each and then felt it could not get a decent return on its investment.

Shull said that GTE intends "to merge the Genuity network into the global network infrastructure that we are currently building." Executives have been evasive about the fate of Nap.Net, a smaller backbone owned by Genuity that operates autonomously out of Milwaukee, Wisconsin, which has been heavily involved in wiring schools and universities in the Midwest. Apparently it will be absorbed into the GTE Internetworking backbone. Nap.Net's segment of the market is "very important to us," Shull said.

Spokespersons at both companies say that their legal staffs determined they do not have to reveal details of the transaction because it will not affect GTE's stock price and because Bechtel is privately held.

NORTHERN LIGHTS

During the same week, PSINet announced the acquisition of iStar. Once the merger goes through, which should take about 90 days, iStar will be renamed, becoming part of PSINet Limited, the Canadian subsidiary of PSINet. The Canadian government and Bell Canada, which owns competing ISP Bell Advanced Communications, must approve. iStar has a network provisioning agreement with Bell Canada for its telecommunication lines.

Members of the iStar board of directors and its shareholder recommended that PSI acquire the Canadian ISP whose stock has been on a year-long decline. iStar stock started at about **US$3.19** in January 1997 and fell to **US$0.86** on November 10, the day PSINet bought the company's outstanding stock. The total value was estimated at **US$25 million** with PSINet buying over 29 million shares.

PSINet plans to link its network with iStar's network creating a network with more than 390 POPs in 42 North American cities. PSINet is also planning major expansion in the United States where it has focused on catering to ISPs. The company recently sold a 20 percent stake to ICX Communications in exchange for 20 years of exclusive network services. ICX is building a 10,000 mile network that will operate at OC-48 speeds in about four years.

The PSINet deal may be more than 1,000 times smaller than the **$37 billion** MCI WorldCom deal, but it will make the Herndon, Virginia-based company number one in Canada, where iStar has developed a coast-to-coast, tundra-to-temperate infrastructure from which to serve smaller ISPs or sell connections directly.

WHAT'S NEXT FOR WORLDCOM?

But nothing in the history of business mergers in North America matches WorldCom's 12-year buying spree with its most significant deals, at least in

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terms of the Internet, coming in the past two years. In 1996, the company bought MFS Communications and UUNET Technologies, two of the biggest players in Internet traffic. In September, it bought CompuServe Network Services and ANS Communications, two of the largest and fastest backbones in the United States. And none of this includes what the company has been doing overseas, such as the recent purchase of the largest ISP in the Netherlands.

What is next on WorldCom's shopping list? Ebbers said that executives will "focus our time" on the merger. But he added: "Entrepreneurs look for opportunities. If there are opportunities out there that make sense, we certainly will not shy away from them." MCI WorldCom is expected to have more than **$30 billion** in sales next year and 20 million customers, a joint statement said. The business combination should boost WorldCom's earnings by more than 20 percent in the first year after the deal closes, it said.

BT CASHES OUT

WorldCom's offer also beat out a merger agreement MCI had with British Telecommunications Plc, as well the GTE offer. The BT deal fluctuated between **$18 billion** and **$24 billion**, but no one should feel sorry for the overseas telecom giant.

The new offer, raised to **$51** a share from **$41.50**, will be paid in WorldCom stock to all shareholders other than British Telecommunications. BT, which holds a 20 percent stake in MCI, will receive **$7.4 billion** in cash. That includes **$465 million** that British Telecom will be paid because MCI broke its contract to merge with BT. WorldCom, the number 4 long-distance phone company, also picks up **$5 billion** in MCI debt.

With British Telecommunications cashing out, MCI shareholders will own about 45 percent of the new company, while WorldCom will have a 55 percent stake. What is less clear is the fate of MCI's joint venture with BT called Concert Communications. MCI said it will continue to provide global products from Concert Communications Services, despite rumors that the Concert is in shambles. After the transaction closes, the executives said at a news conference, MCI WorldCom will become a non-exclusive distributor of Concert products and services. Two days later, however, BT announced it bought MCI's share of Concert.

MCI Chairman Bert C. Roberts, Jr. said of the MCI and BT failure to consummate the deal: "I think the long and short of it is: When you are in a revolution, a communications revolution, things don't always happen in an orderly fashion." There was "nothing wrong with the BT merger," Roberts said. And "we carefully weighed" the GTE offer, but WorldCom was "a fantastic opportunity."

"MCI has made the best possible choice in this alignment with WorldCom," Roberts said, because both companies can save enormous amounts of money, generate enormous revenue and share "an entrepreneurial heritage of development."

BIG BOSSMAN?

Obviously, two of those factors are probably more important than the third. Watching the merger may be akin to the creation of sausage. The end product is bound to be prettier than the process. John W. Sidgmore, president and CEO of the UUNET Technologies as well as holder of several WorldCom executive acronyms, said he thought WorldCom's merger with

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The PowerRack also has the standard feature list: dial-in/dial-out access, a powerful RISC CPU, Ethernet connectors, ISDN capability, PPP, SLIP, CSLIP, *bootp*, *rlogin*, *telnet*, reverse *telnet*, PAP/CHAP authentication, RADIUS II, RIP II, SNMP MIB II, subnet routing, IPCP DNS exts. for Windows 95, and IP filtering.

PowerRack user and Internet Service Provider Michael Behrens, of InterNet Kingston (mbehrens@kingston.net), commented, "The PowerRack is an attractive product, both in its ability to do the job well and to do the job. . . cost effectively. Port for port costs are significantly lower than the Livingston Portmaster. The product lives up to its name. . . performance under load is exceptional! The PowerRack also offers a significant feature for feature comparison against the available competition (i.e. Livingston Portmaster). And, technical support was extremely knowledgeable and responsive."



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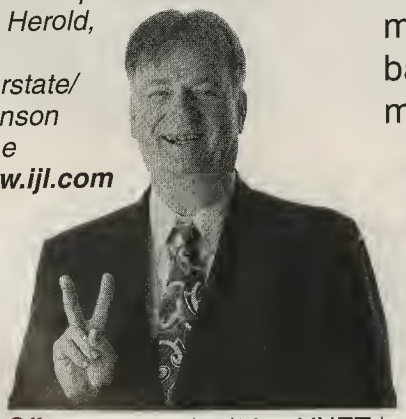
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See Our Network Map In Oct-Dec "Boardwatch Directory"

MFS would take a year, but it was accomplished much more quickly. It will not take MCI and WorldCom long, Sidgmore said, before the two companies are "showing customers a single face, a single message."

But finding that single face may be more arduous than the public has seen; several former MFS employees brought issues from that merger into court stemming from WorldCom's slash and grow methods. MCI WorldCom will provide an interesting mesh of the executive staffs, starting at the top. During a news conference, Ebbers referred to Bert C. Roberts Jr., chairman of MCI, as "bossman," but few people in the business believe that Ebbers will actually take a back seat to Roberts. Upon completion of the merger, Roberts, currently chairman of MCI, will become chairman of MCI WorldCom. Ebbers will serve as president and chief executive officer of MCI WorldCom.

Ebbers is brash with a reputation for slashing costs, often by eliminating managers. He is a contrast to the less-visible, quieter, although just as forceful Roberts, who said he intends to stay "through the merger and beyond. I'm not ready to retire yet." The companies also seem to contrast. Since its founding in 1968 and its revolutionary leadership in the breakup of Ma Bell, MCI has been reminiscent of the rebellious teenager who wakes up in his thirties to realize he has become his parent. Meanwhile, WorldCom seems to be busting out like a 16-year-old with the keys to the family car and high hopes of picking up some girls and beer.

Gerald H. Taylor, currently chief executive officer of MCI, will become vice chairman of MCI WorldCom and will be responsible for international operations and ventures. Timothy F. Price, currently president and chief operating officer of MCI, will become president and chief executive officer of MCI WorldCom's U.S. telecommunications operating subsidiary. Sidgmore will be vice chairman and chief operating officer of MCI WorldCom and will continue his current responsibilities, including European operations. And Scott D. Sullivan will serve as chief financial officer of MCI WorldCom. The board of directors of MCI WorldCom will have 15 members, eight from WorldCom, five from MCI and two new members.



SYNERGISTIC SAVINGS

Financial officer Sullivan says that significant areas of cost savings have been identified and that executives believe the anticipated "synergies" are more than previously estimated by MCI and WorldCom. Estimates initially developed by WorldCom have been revised based on new data and analysis based on discussions between the companies. Executives estimate that annual cash operating cost savings of **$2.5 billion** are achievable in 1999, increasing to **$5.6 billion** by 2002. In addition, capital expenditure savings of **$2 billion** a year are expected in 1999 and beyond.

Sullivan said the increase in cost savings of a combined company make the deal more attractive than it seemed initially, especially in light of the combined revenue the companies will generate. Ebbers said that the combination has the potential to create a company "that grows in the 75 percent range." Sullivan added that executives expect new areas and opportunities in cost savings to be found as the merger proceeds.

WorldCom and MCI have agreed to expand commercial business arrangements that already exist between the two companies, accelerating the timetable to achieve cost savings. Additionally, the companies will immediately pursue commercial arrangements for MCI to sell WorldCom's local services and for WorldCom to sell MCI's services.

PENDING APPROVALS

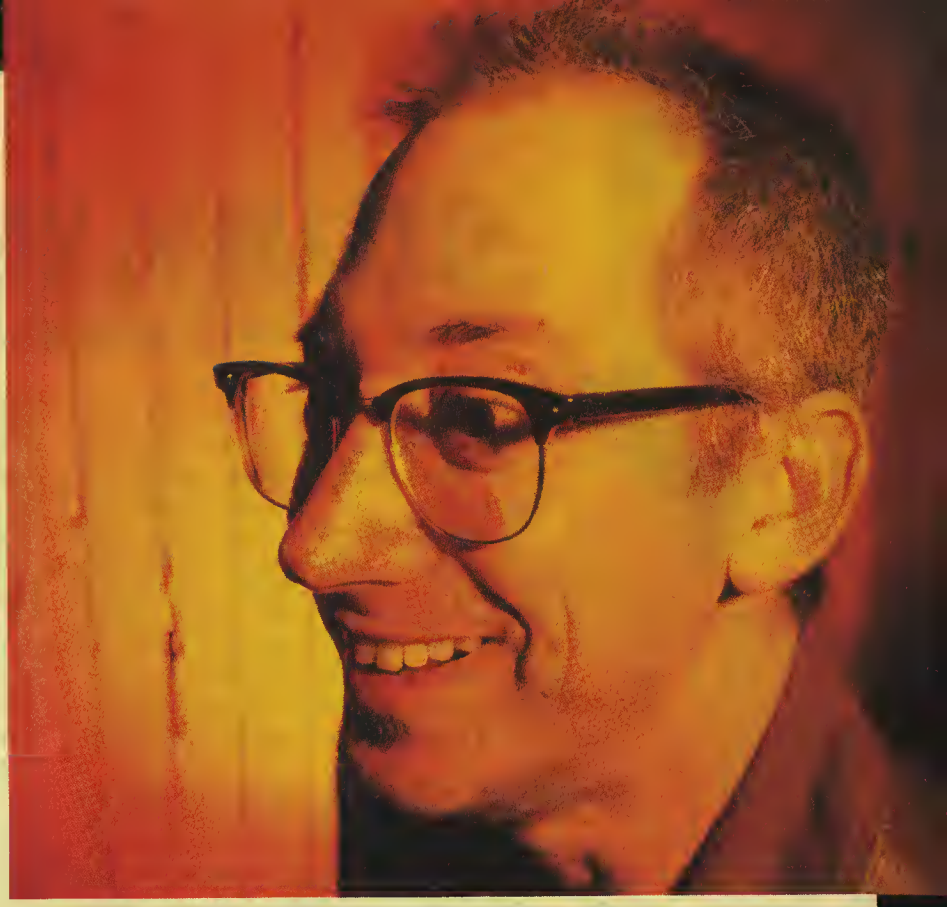
The merger agreement is subject to the approvals of MCI and WorldCom stockholders as well as approvals from the Federal Communications Commission, the Justice Department, which is preoccupied with desktop icons, and numerous state government bodies. In addition, the merger is subject to review by the European Commission. The companies anticipate that the merger will close within six to nine months.

TERMS

The actual number of shares of WorldCom common stock to be exchanged for each MCI share owned by investors other than BT will be determined by dividing **$51** by the 20-day average of the high and low sales prices for WorldCom common stock prior to the closing, but will not be less than 1.2439 shares (if WorldCom's average stock price exceeds **$41**) or more than 1.7586 shares (if WorldCom's average stock price is less than **$29**).

The MCI WorldCom deal would surpass the largest U.S. merger so far, a **$25.6 billion** union of Bell Atlantic Corp. and Nynex Corp. that was completed in August. ◆

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STREAMING MEDIA by Doug Mohney

A SIDE TRIP INTO VIDEOCONFERENCE LAND

This month's column takes a side trip from Internet broadcast and streaming media into the "Love me, love me not" world of Internet videoconferencing software. One of the principles of normal live streaming media — Internet audio and video to large audiences — is typically a one-to-many function. One broadcaster sends out a single data stream of either audio or video that ten, one hundred, or a thousand people can pick up. There's no designed interactivity between the listener/viewer and the broadcaster.

Internet videoconferencing is a different animal, one that is easily defined, but has had a hard time matching the success of Internet broadcast for a couple of different reasons. First, Internet videoconferencing requires a steady flow of information between two or more parties. There is no "sender" or "receiver," only participants. Each participant needs to have enough bandwidth to receive information from a centralized server as well as bandwidth to broadcast audio and video to the centralized server for the other participants to watch. If one-way Internet broadcast is pushing the edge of enjoyable viewing on a 56K analog modem, try originating one at the same time. In addition, each sender has to have a computer with sufficient horsepower and a video camera to transmit. One of the neater gizmos to come down the pike is the Connectix Color QuickCam (**www.connectix.com**), a CCD-based camera that looks like an oversized golf ball. It connects to a computer through a parallel port or universal serial bus (USB), depending on the model. The parallel port version is easily installed on Intel-based or Mac boxes (make sure you order the appropriate version for the software), while the USB version requires a USB port. In theory, if you have USB, you should be able to get some really happening video pumped into your PC, with a lot less of the jerky-flow than you would get from the slower, parallel port version.

List price on the color version is around **$200**. Once you have a PC (at least 166MHz) and a Connectix video ball, you need software. There are several options and nearly all of them claim to meet the H.323 videoconferencing standard. Microsoft's NetMeeting is a freebie download off the Net (bundled into some versions of Windows 95) and can deliver one-to-one conferencing. It also has functionality built in for sharing and viewing files, plus text-based chat and white board features. Text-based chat may sound like a dork feature in an audio/video application until you're trying to work with someone on a PowerPoint document and there ain't no bandwidth to shoot down voice.

However, NetMeeting is a young pup when compared to the elder statesman of PC-based, off-the-shelf videoconferencing software. CU-SeeMe came from a bunch of hacks done by Tim Dorsey for Cornell University and quickly popped up to be the standard for multipoint videoconferencing on the Internet. Certainly there are more expensive and elegantly written packages, but CU-SeeMe holds the torch for being the first and best known. Having the CU-SeeMe client and server offered for free by Cornell during its early days didn't hurt. Commercial development for CU-SeeMe was handed over to White Pine Software (**www.wpine.com**) in New Hampshire. White Pine extended the software from its support of black and white to color, provided documentation, and started adding other features to support business services. The software has been used to do everything from broadcast NASA-TV to the Grammy Awards.

The latest versions of CU-SeeMe can either stand alone or use a server for joining larger groups of people together. With a server, one of CU-SeeMe's neater features is the ability to support up to nine participants visually, nine little windows of people's faces or whatever else they choose to put in front of the camera. In combination with the ability to support multiple CU-SeeMe servers, you could combine a number of reflectors together to support large audiences, if there were enough bandwidth to support it all. The White Pine CU-SeeMe server software runs on a variety of Unix flavors as well as Windows NT.

White Pine has always had one foot in the consumer market, due to the proliferation of the free CU-SeeMe software from Cornell, and another foot in the business market. Its latest business moves include adding support for the H.323 video conferencing standard and the roll-out of the MeetingPoint conferencing server. H.323 is supposed to allow clients and servers from different software manufacturers to talk to each other so that the NetMeeting client can talk with the White Pine server and so forth.

There are folks who are challenging White Pine for its supremacy on the consumer side of the videoconferencing software market. At this summer's Internet World, Kevin Wall, founder of BoxTop Interactive (**www.boxtop.com**) made no secret of his company's goal for its iVisit software. "By the end of the year," he said, "we'll be the brand name in Internet videoconferencing."

He repeated the statement again, after I blinked the first time, and started writing the words verbatim.

Doug Mohney was employee #10 at DIGEX. He has learned, and forgotten, a lot about help desk support, competitive intelligence, sales and marketing, leased-line service ordering, telco service, and public relations. He makes no pretenses at understanding anything more about the technical side of IP other than being able to get a PPP account working.

His writings have been published in *LA View, Washington Technology* and the *Washington Post*. Doug receives e-mail at **moo@clark.net**.

It's the sort of swaggering arrogance you expect out of the truly bold, a flashback to the Robert Conrad commercial of the '70s where he *dared* you to knock the battery off of his shoulder, the sort of attitude that got Steven Jobs and Philippe Kahn to the top of the heap in the PC revolution.

It's also the sort of thing that the Greek hero would end up doing before the Gods took him down a notch or two for hubris.

Make no mistakes, BoxTop Interactive is going full bore to promote its iVisit program, a multiparty videoconferencing package. No big revolution in technology here, it does the same thing that CU-SeeMe does, except without a reflector/server involved to pass around video streams. It also has some improved tools to find people with shared interests. In some ways, it probably does CU 3.0 better because Tim Dorcey, the author of iVisit and creator of the original Cornell CU-SeeMe software package, started over from scratch without having to hack legacy code or worrying about backward compatibility. It is focused as a consumer tool, so it doesn't have support for H.323 or white-boarding. Nor does it yet support color, trading it off for faster response time in black and white.

The real flash within BoxTop's pan appears to be a carefully crafted marketing plan to build hype around the product. Dorcey, a tall, quiet spoken man, is being played up as a celebrity, a hook to get the press interested. You couldn't walk in the door to Summer Internet World without seeing an iVisit sticker on the windows or a freestanding cube in the lobby. Members of the working press got an iVisit CD-ROM thrown into the canvas freebie carry bag and had to walk past an iVisit station strategically located at the entrance to the press area. Bundling arrangements have been put into place with over 20 OEMs and the client is free for download.

Of course, the best hook that BoxTop has isn't the software, but what you'll be able to see/hear with it. One of BoxTop's groups, BoxTop Live, already produces online celebrity interviews for AOL, MSN and CompuServe at a rate of nearly 20 per week. Almost all of these chats to date have been based around the old standard of text.

Want to guess which client you must download if you want to watch a BoxTop Live-produced video chat?

It's a pretty sly strategy, and harkens back to the early days of the World Wide Web. After the novelty wore off, people came back to using the Web because of the free content involved. Will fans download iVision in droves to see and hear their favorite stars? Sounds like a no brainer to me.

Make no mistake, Kevin Wall, the founder, is a shrewd businessman and promoter, having been involved with the music, television, and radio entertainment field for many years. And iVision is the first of several products on which BoxTop is working. But will iVision be *the* brand name in videoconferencing by the end of the year? An interesting question, and definitely both myself and some folks up in New Hampshire will be interested to see.

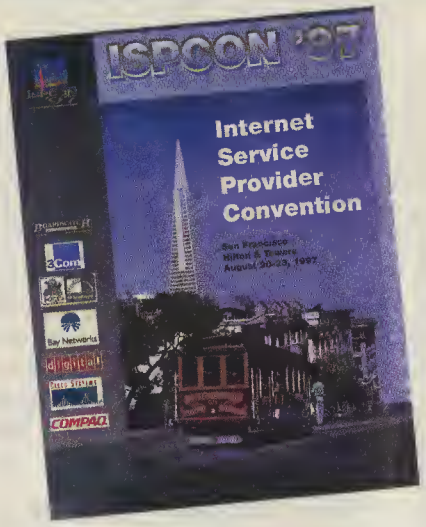
However, both companies have an uphill battle in winning wider acceptance of their software as a means of entertainment. A lot of the marketing buzzwords that get thrown around include discussion about building and sustaining online communities. Howard Rheingold was supposed to conquer the world with online communities, but he's found his company in meltdown. High-speed bandwidth into the home would help iVisit a lot. You could argue that the only "community" that has built up a sustainable following around videoconferencing software is the non-profit (amateur?) adult swingers that have salted away servers around the country.

CRASS CONFLICT-OF-INTEREST UPDATES

The Video on the Net conference is on track for February 11-12, 1998, in Los Angeles. At this point, speakers ranging from next-generation broadcasters such as AudioNet, to traditional broadcasters from ABC News have made commitments. Check the **pulver.com** web site for the latest details on topics, speakers, and location. You also get to hear me, the honorary co-chair of the conference, yack about the future of Internet broadcast during the opening remarks.

Wiley Computer Publishing has affirmed that *The Internet World Guide to Webcasting* will be in print by mid-March in conjunction with Spring Internet World '98. Peggy Miles of InterVox (**www.intervox.com**) and moderator of the webcasting mailing list is the lead author, but several leading experts have contributed to the 400+ page tome. ◆





Did You Miss Any Sessions From ISPCON '97 ?

ISPCON has emerged as THE gathering point for Internet service providers, web hosting services, and national backbone operators from all over the world. The Resource Link recorded most of the 180 educational sessions from this year's Internet Service Providers Annual Convention. Below is a list of the most popular sessions. Many more sessions are available at www.the-resource-link.com.



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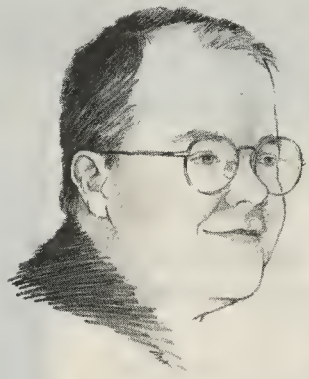
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EURO NEWS

Richard Baguley

SCOTTISH LEGAL SAGA REACHES AN END

In last month's column I talked about an ongoing legal battle which could have had a serious impact on the Internet industry in the U.K. and beyond, although it took place on a small set of windswept islands north of Scotland. A local newspaper (*The Shetland Times*, at **www.shetalnd-times.co.uk**) and a freelance writer (who runs a web site called *The Shetland News*, at **www.shetland-news.co.uk**) were engaged in a legal struggle over the right of one to link to the stories on an other's web site. You can get the full story from last month's *Boardwatch*, but basically the newspaper had obtained a legal ruling against the freelancer, stopping him from linking to stories on *The Shetland Times* web site from his web site, claiming that the freelancer was attempting to pass the stories off as his own. The situation was worsened by the personal rivalry between the owner of the newspaper and the freelancer. The freelancer (Jonathan Wills) used to edit *The Shetland Times*, but left after arguing with the owner (Robert Wishart). Now, the legal wrangling has reached an end. On November11, the two sides were at the Supreme Court in the Scottish capital of Edinburgh, where a Judge was due to rule on an appeal made by Wills against the court order banning him from linking into the *Times* web site.

At the court, the two sides reached an agreement. Ironically enough, lawyers for the two sides reached the agreement while they were trying to set up a computer to demonstrate the principals behind the Internet. Apparently, the telephone system in the court building wasn't designed with the Internet in mind, and they couldn't persuade the modem to connect through it.

The terms of the out-of-court agreement are interesting — *The News* is allowed to link into stories on the *Times* web site, but these links have to be clearly marked with a legend stating that this is a *Shetland Times* story. They also have to be accompanied by a small *Times* logo, and both the logo and the legend have to link to the main page of the *Times* web site. Although the *Times* didn't comment on the outcome (except for posting the text of the agreement on its web site), Wills said, "I'm very pleased that, after 13 months, we've managed to reach an agreement acceptable to both sides. I think the terms of the settlement speak for themselves and I look forward to returning to normal business. I don't want to comment further as perhaps we've all said enough over the past year." As part of the agreement, both sides will pay their own legal costs, although Wills had secured the support of the National Union of Journalists, who were paying his costs.

This agreement has been widely welcomed — many felt that the judgment, which restricted the *News* from linking into stories on the *Times* site, could set a very unwelcome precedent. If this had happened, the precedent could possibly have been used by any company or organization in Scotland to stop other web pages linking into their site. Although the Scottish and English legal systems are very different (meaning that a judgment in Scotland wouldn't necessarily set a precedent in the rest of the United Kingdom), it could have set a precedent for legal action on a wider scale.

I think it's a pretty good agreement. It preserves the right of one site to link to another, but it also underlines that it isn't acceptable to try to pass other people's content as your own. Although I don't think that Wills ever did this, there have been web sites that have tried to make stories from other web sites look like their own by using frames and even running their own advertising on top of these stories. There is a big, gray area here, but it is important that people aren't allowed to effectively steal other people's content. While links into other web sites and the like should be encouraged, this shouldn't be used as an excuse to take other peoples work and pass it off as your own.

Although the agreement has been widely welcomed, it has failed to establish a reliable precedent. Nothing in it could stop (or alternatively encourage) other legal action of this type — there is still no precedent for a Judge or lawyer to use to advise other web sites what is acceptable and what isn't. A number of legal actions in the U.S. have recently clarified the issue somewhat, it is still the subject of hot debate in the U.K. and Europe, and this agreement has done nothing to cool this.

THE INTERNET AND THE COURTS: STILL ON TRIAL?

The verdict may be in, but as far as the media in the U.K. is concerned, the jury is still out on the prospect

Richard Baguley is the technical editor of ***Internet Magazine***, the UK's best selling Internet magazine (**www.emap.com/internet**). His writing has appeared in numerous places, such as ***Mac Format***, ***Wired News*** and ***WebMaster***. He is an ex-editor of ***Amiga Shopper*** and ***Internet Today***.

He lives in North London and spends long periods of time sitting on top Primrose Hill, watching the clouds and pondering the meaning of human existence. He denies reports that he's simply too lazy to get up. He can be contacted at **baggers@baggers.com**.

of publishing court decisions over the Internet. Although the U.S. media seemed unperturbed by the judge's decision to publish his ruling in the recent Woodward case over the Internet, most of the U.K. media seemed rather surprised by this. In fact, in the period between the end of legal arguments and the publication of the decision, the judge's plans was the main angle of most of the stories. The TV news was filled with the now familiar stories on what the Internet was and how it worked, along with a few mentions of the URL of the small regional magazine that was chosen to carry the result. Following the decision, there was more than a hint of "I told you so" when the judge's ISP was unable to deliver the decision because of a power failure.

The benefits of posting decisions of this type over the Internet are obvious — it allows millions of people (both legalists and observers) to access the decisions quickly, and it also allows the judge to present his entire decision in a more direct way. While the TV and radio news may only contain excerpts of the decision (and probably a certain media spin on those excerpts), making it available over the Internet lets all interested parties look at the full, unedited and un-spindoctored decision.

Thus, it's not surprising that the U.K. legal system is beginning to realize the benefits of getting online. The publisher of the *All England Law Reports* (which carries the transcript of important legal cases) already has a web site, and is planning to carry the transcripts they publish on the site shortly — Butterworths (at **www.butterworths.co.uk**). However, this won't be a publicly accessible service - it will be a subscription service. Although the company is offering a month's free trial, it'll cost **£3,000** (around **$4,950**) for a year's subscription.

Meanwhile, the government is also making moves to start using the Internet to cut down on the paperwork. One of the promises of the Labour Party in the run-up to the election was to do this, and the cabinet office (the arm of the Civil service which supports the prime minister) is planning to offer a quarter of government services (such as the reams of reports and documentation currently offered by the office) by 2002.

Unfortunately, it is still finding its feet with this — although it is now offering many of the its forms and leaflets use over a web site (**www.open.gov.uk/co/cohome.htm**), you still have to print them out before you can fill them out and return them, which seems to rather defeat the object. Still, it's a start...

DUTCH ISP TRIES TO STOP NET TAP

The Dutch ISP XS4ALL has been ordered by the Dutch government to tap all the Internet traffic of a customer that is under investigation. The ISP, which is well known for its radical attitude and active defense of freedom on the Internet, is opposing the action and is waiting to go to court over the issue.

According to XS4ALL, it was instructed to log and store all the Internet traffic of one user by the Dutch Ministry of Justice. The Ministry claims that it has the power to order this under a 1993 Dutch law to help clamp down on com puter crime. XS4ALL is concerned that this law, which was introduced to help the police obtain evidence from a computer, has never been applied to an Internet account and that it may not necessarily be applicable. Its argument is that the law was intended to help recover data that was already stored on a computer, not to provide a way to tap data as it is sent.

XS4ALL is also concerned that it could get dragged into legal wrangling over the tap — as the precise applicability of the law is in doubt, the person could, in theory, take XS4ALL to court for illegally tapping his or her Internet data. XS4ALL also claims that this shaky legal ground could undermine the investigation, as if the grounds for the tap was found to be illegal, any information arising from it would be inadmissible in court.

Meanwhile, XS4ALL is refusing to comply with the request. It expects that the Ministry will take it to court to try to get the ISP to comply and that this court case will help clarify how the law can be applied. I'll be covering this rather intriguing, and possibly precedent setting ,situation as it develops.◆





Notes From The Underground by Wallace Wang

ONLINE TERM PAPER PLAGIARISM

In most American public schools, reading and writing is fast becoming a lost art. The average American only reads one book a year and substitutes letter writing with phone calls whenever possible. Given the immediate gratification of television and telephones, it's no surprise that so many people avoid writing anything longer than curt thank you letters at Christmas time.

Since so many adults find writing distasteful, it's only natural that their children will see writing as a similar burden as well. While adults often avoid writing by forcing a secretary or similar lower-status worker to do their writing and thinking for them, children have had no such recourse until now.

Rather than flexing their own critical thinking skills and exercising their writing abilities, students can now take the easy way out through the wonders of plagiarism and the Internet. The next time they need to write a term paper, they can do what presidents do and just pay someone to write it for them instead.

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Research papers are a staple of high school and college, so make sure you keep up to date on the latest web sites offering research papers by visiting the Evil House of Cheat web site at **www.cheathouse.com**.

THE LEGALITIES OF ONLINE TERM PAPERS

In case you're wondering about plagiarism, rest assured that all of these online research paper services have already addressed that issue. Collegiate Care Research Assistance states that "Our papers are intended to be used solely as research aids. Our company is designed to assist students in writing their own research papers by affording them the opportunity to

Wallace Wang is the author of ***CompuServe For Dummies***, ***Visual Basic For Dummies***, ***More Visual Basic For Dummies***, ***Microsoft Office 97 For Dummies***, and ***More Microsoft Office 97 For Dummies***.

When not working with computers, he performs stand-up comedy and has appeared on A&E's *Evening at the Improv* TV comedy show. He can be reached via e-mail at **70334.3672@compuserve.com**, **bothekat@aol.com**, **bo_the_cat@msn.com**, or **bothecat@prodigy.net**

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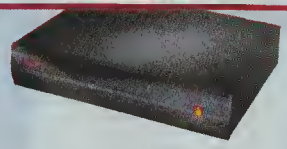
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As you might expect, these types of disclaimers are about as effective at stopping plagiarism as politicians are at stopping government abuses of taxpayers' money.

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Term Paper Assistance Service even justifies its services by claiming that "All-too-often, talented students receive reduced grades on otherwise-excellent papers simply because they misused the APA or MLA style, failed to include an outline, or even because their paper was a day late!"

In other words, professors are penalizing poor students for trivial mistakes that they could avoid if they had only purchased and studied a research paper from an online term paper service.

The issue of online research papers has even reached the federal courts. Boston University has filed a lawsuit alleging wire fraud, mail fraud and racketeering by eight term paper companies in seven states. The university claims that these companies broke a Massachusetts law that prohibits the sale of term papers. The lawsuit seeks a court order barring these term paper companies from doing business in Massachusetts. So, if you go to school in Massachusetts, just cross the border to New Hampshire, Rhode Island, or Connecticut and have your term papers shipped to a post office box in one of these states. Then again, all the effort expended toward obtaining online research papers could be better spent writing your own papers.

LETTING OTHERS DO YOUR THINKING

While teachers, universities, and parents openly express "horror" that students could plagiarize term papers so easily, the topic certainly raises additional questions. If it's considered "immoral" for students to pass off the written thoughts of others as their own, what does this say about society's acceptance toward presidents and Fortune 500 CEOs who hire professional speech writers to craft their thoughts for them?

Rather than listen to the polished writing of a hired speech writer, don't the voters and corporate stockholders deserve to hear the actual thoughts of their elected politicians and CEOs? If a politician or CEO is incapable (or unwilling) to organize and communicate his (or her) own thoughts in written or spoken form, what does that say about their abilities to function as a leader? Shouldn't individual communication skills be valued more highly than a person's ability to recite another person's thoughts?

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Given the double standard that places the stigma of plagiarism on students but blindly accepts it for highly paid members of society who earn six-figure incomes, the debate about online term papers seems more humorous than important in any way.

Of course, students who rely on plagiarism will certainly stunt their analytical and written skills, so rather than take the easy way out and pay someone to do your work for you, take the time to think for yourself. Even if you fail, you can always buy a college degree from a mail-order diploma company (such as General Delivery University at `www.bandersnatch.com/gduedu.htm`) and still land an important executive-level position. Then you can disappear in the safety of a corporate bureaucracy so you won't have to risk thinking for yourself ever again.◆



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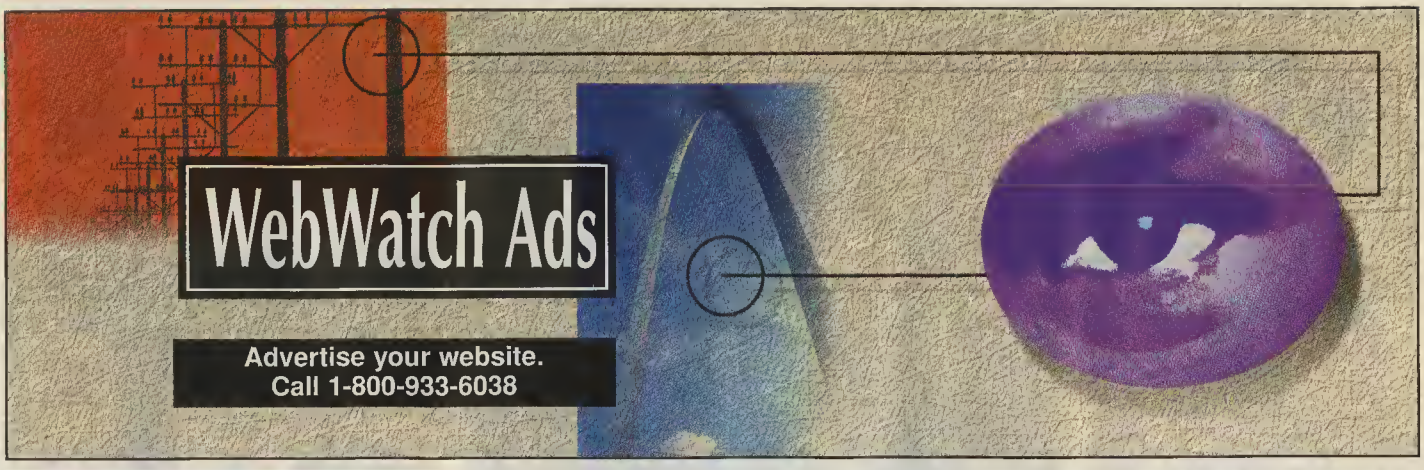
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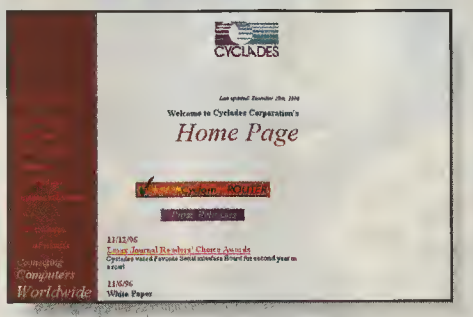
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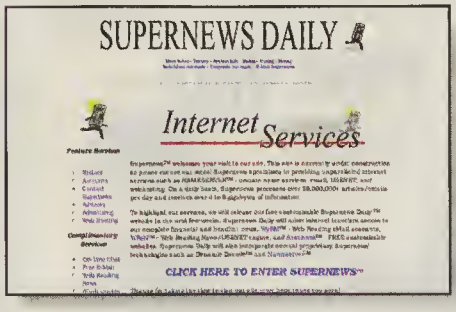
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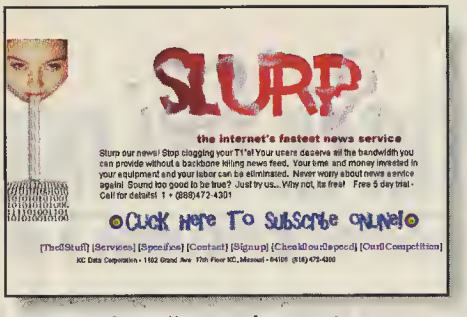
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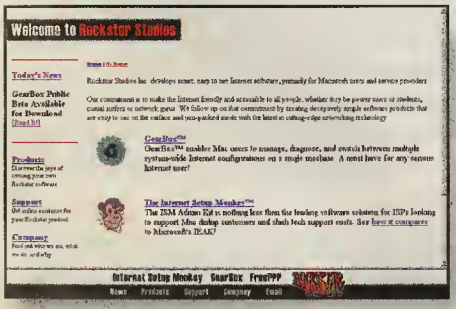
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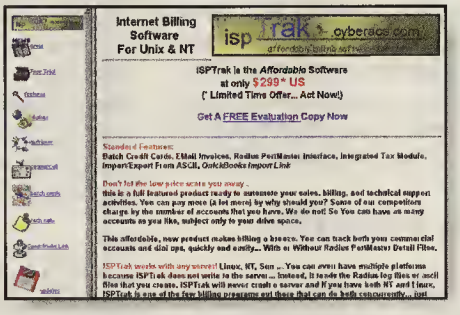
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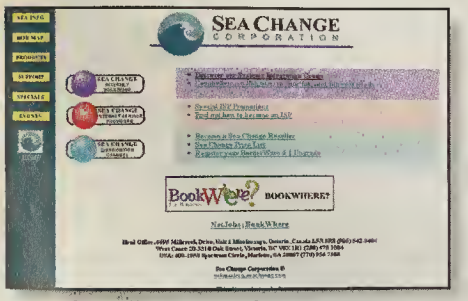
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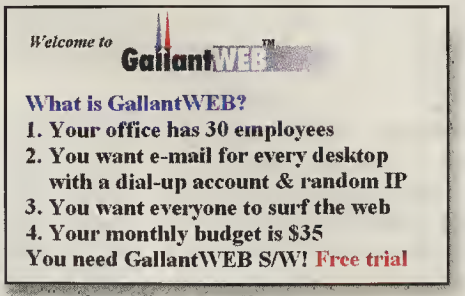
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DVORAK ONLINE

by John C. Dvorak

MUSINGS ON EXPLORER AND MSN CRAP

I've finally moved to MS Explorer 4.0 and wonder for how long the two browser companies are going to leapfrog each other. The fully debugged (but still buggy) 4.0 is a terrific product, there is no question. But I suspect that Netscape 5.0 will be better. No I mean Explorer 5.0 will be better. No I mean Netscape 6.0 will be better. You get the idea. What gets me is that each time these companies leapfrog each other, everyone comes out of the woodwork to review and heap praises on the "newer" browser as if waiting for one of these two companies to screw up. It's obviously a slow news day when a new browser is news. It will be fun to watch Netscape and Microsoft whine when the media suddenly loses interest in the browser wars. It's easy to get used to getting too much attention and always expecting it.

I suspect that this waning will begin when the magazine editors discover that fewer and fewer people are upgrading no matter what Netscape and Microsoft say. I go from machine to machine and still find people using version 2 of both companies' products. Fewer people still upgrade fonts and sites that use Ariel Black, for instance, show Times Roman instead on the pages. Folks go to **www.microsoft.com/truetype/fontpack/win.htm** and get your core web fonts upgraded. It's free!

THE WORST MICROSOFT BOTCH YET

Which brings me to another point. The site I just specified is rather hard to find if you don't see it on the **www.microsoft.com** home page. I've complained about this disorganized site before. And I'm aware of Bill Gates' concern over the company's inability to do well with content. He should be concerned, but he's obviously part of the problem or it wouldn't be a problem. This problem emerged again with the new Microsoft Sidewalk sites which are fairly pathetic. But a new height of mediocrity is achieved with the latest iteration of MSN — the online service. It's probably the worst thing Microsoft has ever done. And I'm not talking about the jazzy multimedia interface of which I'm sure the company is proud. The interface is impressive, if annoying. I'm talking about the moronic and insulting so-called content. The only person who would like this site would have to be a complete idiot or a drooling goofball.

What triggered this disdain was a column called "Ask Dr. Net" highlighted on the home page of MSN the last time I opened it.

But before I go into ragging on Dr. Net, let's look at some other aspects of the new MSN that are annoying. First of all. How do you get it on your computer? Again Microsoft suffers from the same disorganized theme that it does on **www.microsoft.com**.

Let's go to **msn.com** and look. Is there anyway of getting your MSN account updated from there? Nope, not at the home page I'm seeing. In fact there is no direct link to download IE 4 either, from what I can tell. It says I can download IE 4.0 tips. What tips? Who cares? Ooops, I'm wrong. In the upper left hand corner where it says "Try MSN" on the menu bar you'll find a link to the order form. Microsoft will send you a free CD. But I see no way of downloading it. Whereas AOL fits on a floppy, I guess this does not. Probably too big to download.

So I go over to Microsoft.com and see a "more downloads" hot spot and go there. Aha. There is a link to the fonts that are generally difficult to find. This is a good sign. Still no way to download MSN. So I go to my old MSN system and look for an upgrade path. Under member assistance there is an icon that says "upgrade to MSN 2.5." I click it and instead of a download I get a message that tells me to go to **http://free.msn.com/upgrade**. Curiously this link isn't hot, so I can't click on it. The site is the same one as before, offering to send me a CD-ROM. I give up on finding a downloadable.

Anyway, on another machine I have the 2.5 software running and, as said before, it's nifty looking. The new icon is a picture of a hand giving a one-finger salute. Although the finger pointing up is the index finger I'm sure that this will be quickly redesigned by the Photoshop users out there. Once inside the site you find black. Lots of black. Also a lot of animation and movement. It looks cool. But the content appears to be developed *by* lame-brain X-geners *for* lame-brain X-geners most of whom do not even like computers. Then we realize that black is the color of the X-gen flag.

On one page there is a picture of a Gothic chick making an ugly face at the user. She's about 17 and looks like a dork. Probably one of the programmer's girlfriends. When I'm teased into the Dr. Net page by an irresponsible hint that airport x-rays can erase a hard disk, I go there to see what this guy is doing. Someone asks a question about whether the airport x-ray machine can erase a hard disk. We all know that it can't and that the only threat to your hard disk is the magnetic field from the motor on the drive belt. But this guy never answers this simple "stock" question. He beats around the bush with a look of cutesy X-gen

In addition to his weekly syndicated radio call-in show, *Software/Hardtalk*, syndicated newspaper columns, magazine writing for ***MacUser***, ***PC Computing***, ***DEC Professional***, ***Information Technology***, and his featured "*Inside Track*" column in ***PC Magazine***, Dvorak is the author of several best-selling books, including ***Dvorak's Inside Track to DOS & PC Performance***, ***Dvorak's Guide to PC Telecommunications***, and ***Dvorak's Inside Track to the Mac***. John can be reached at **dvorak@dvorak.org**

goofball writing and then links you to a bunch of dopey pages. It's one of those content-free, in-your-face blathers that is both pointless and contemptuous. He goes on to insult the poor souls who work the x-ray machine instead of answering the question. All that was missing is the punk gothic spelling that GoZe sUmplN LiKe Dis. In other words "Ask Dr. Net" is just a big joke. To make it worse, at the left of the page is a picture of a grunge babe brushing her teeth. This is so pointless it's not worth dwelling on. When you pass the cursor over her she makes a goofy face at you. Cool, huh? So who is behind this nonsense and what are these people trying to do? "Hey! Let's insult our users. They must be losers to be using this service anyway!" Boy, *that* message comes in loud and strong.

You look at stuff like this and wonder how it gets past the executives. A friend of mine who had a short stint at Microsoft Sidewalk told me something interesting. At these so-called content sites that Microsoft is doing, there are no content experts. The Sidewalk folk who were writers and editors were either replaced by, or are now managed by, "high seniority Microsoft coders from Redmond who wanted a change." I asked him over and over about this and he assured me that it was programmers who were controlling most of these content plays. I don't want to say that programmers can't write a lick and have personalities that should be kept in Redmond, but... many do!

Perhaps Bill himself thinks the "youth movement" on MSN is something that works. The last vestiges of people who go for meaningless tripe such as the X-gen drivel of Dr. Net are tattooed, pierced nihilists who would just as soon see the Redmond campus burned to the ground. Some audience. Let's hope MSN someday tries to provide real content instead of trashy filler. No wonder people are still signing up for AOL. ◆

Dvorak's Recipe Nook



As we approach the holiday season there is nothing like fruit cake. And there is nothing like this wonderful recipe that was floating around the Internet. Apologies to the unnamed writer for lack of attribution.

FRUITCAKE

You'll need the following: a cup of water, a cup of sugar, four large brown eggs, two cups of dried fruit, a teaspoon of salt, a cup of brown sugar, lemon juice, nuts, and a bottle of whiskey.

Sample the whiskey to check for quality.

Take a large bowl. Check the whiskey again. To be sure it's the highest quality, pour one level cup and drink. Repeat. Turn on the electric mixer, beat one cup of butter in a large fluffy bowl. Add one teaspoon of sugar and beat again.

Make sure the whiskey is still okay. Cry another tup. Turn off the mixer.

Beat two leggs and add to the bowl and chuck in the cup of dried fruit. Mix on the tuner. If the fired druit gets stuck in the beaterers, pry it loose with a drewscriver.

Sample the whiskey to check for tonsisticity. Next, sift two cups of salt. Or something. Who cares? Check the whiskey. Now sift the lemon juice and strain your nuts. Add one table. Spoon. Of sugar or something. Whatever you can find.

Grease the oven. Turn the cake tin to 350 degrees. Don't forget to beat off the turner. Throw the bowl out of the window. Check the whiskey again and go to bed.

Happy holidays! Please feel free to share this recipe with others and I hope you didn't spit tea all over your monitor like I did the first time I read this.

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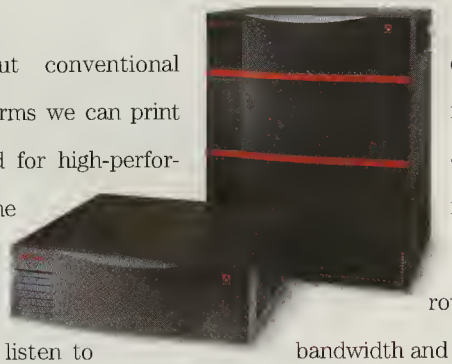
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